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The Worm And I

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JUNE 1969

The Florida Magazine for all Sportsmen

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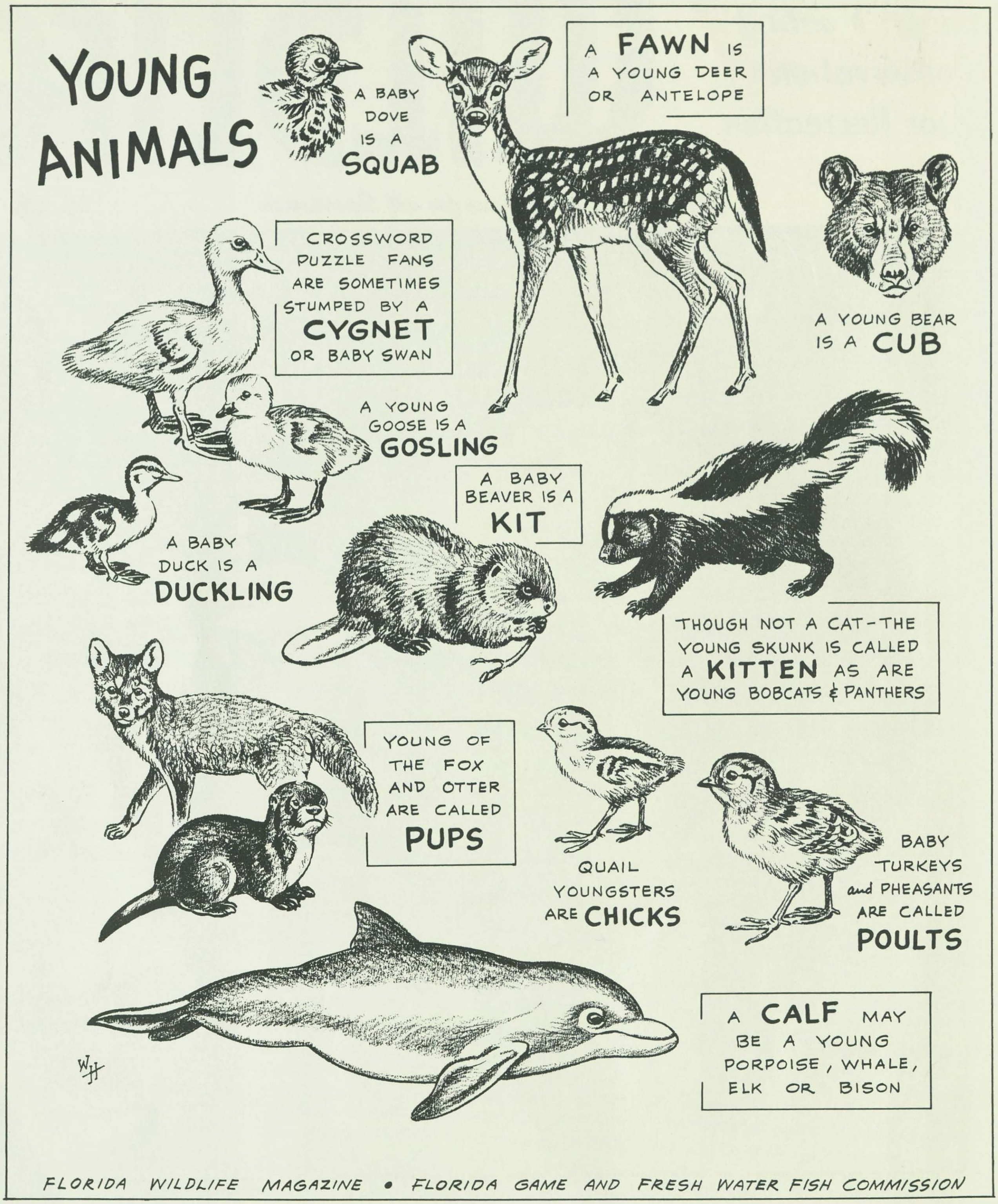
YOUNG ANIMALS
A BABY DOVE IS A SQUAB
A FAWN IS A YOUNG DEER OR ANTELOPE
A YOUNG BEAR IS A CUB
CROSSWORD PUZZLE FANS ARE SOMETIMES STUMPED BY A CYGNET OR BABY SWAN
A YOUNG GOOSE IS A GOSLING
A BABY BEAVER IS A KIT
A BABY DUCK IS A DUCKLING
THOUGH NOT A CAT - THE YOUNG SKUNK IS CALLED A KITTEN AS ARE YOUNG BOBCATS & PANTHERS
YOUNG OF THE FOX AND OTTER ARE CALLED PUPS
QUAIL YOUNGSTERS ARE CHICKS
BABY TURKEYS and PHEASANTS ARE CALLED POULTS
A CALF MAY BE A YOUNG PORPOISE, WHALE, ELK OR BISON
FLORIDA WILDLIFE MAGAZINE • FLORIDA GAME AND FRESH WATER FISH COMMISSION

Florida WILDLIFE

VOL. 23, NO. 1

JUNE 1969

official publication of the
Game & Fresh Water Fish Commission
State of Florida

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The Cover

Now abundant and found throughout the state, the beautiful Snowy Egret was nearly destroyed years ago--by "plume hunters" for the makers of lady's hats. See page 10.

From A Painting By Wallace Hughes

FLORIDA WILDLIFE is published monthly by the Florida Game and Fresh Water Fish Commission, Tallahassee, Fla. Single copy price, 25¢. Subscription rates: 1-year, $2.50; 2-year, $4.75; 3-year, $6.25. Change of address should be reported promptly. The Commission assumes no responsibility for unsolicited manuscripts and illustrative materials. Permission is granted to reprint text materials, EXCEPT for advertising and commercial purposes, provided full credit is given FLORIDA WILDLIFE, and contributors. Clearance must be made with photographers and artists to reproduce illustrations. Entered as Second Class Matter Nov. 8, 1947, at the U.S. Post Office, Tallahassee, Fla., under the Act of August 24, 1912.

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Special Duty Officers

By MIKE ALBERTSON

A NEWSMAN witnessing the showdown between riot control officers and more than 200 determined anti-war demonstrators at St. Leo College near Dade City last April couldn't believe his eyes.

"Wildlife officers on riot duty?" he asked.

Twenty Florida wildlife officers had lined up shoulder-to-shoulder with highway patrolmen and other law enforcement officers, forming a line across State Road 52, when the demonstrators threatened to cross a barrier. The shaggy-haired students jeered . . . but went no further.

Five other wildlife officers, who had been patrolling the southern fringe of the campus all morning, surrounded a grassy lakeside meadow as security for U. S. Secretary of Defense Melvin Laird as his helicopter touched down. He had come to deliver a commencement address.

When his speech was over—without incident—Laird's 'copter took off from a soccer field ringed by a squad of wildlife officers, part of a 35-man Game and Fresh Water Fish Commission unit that had arrived in Dade City the night before and slept on Army cots in the National Guard Armory.

Normally empowered to enforce only game and fish and boating safety laws, wildlife officers first joined the riot control ranks at St. Augustine in the long, hot, violent summer of 1964.

"We are given special authority in civil disturbances under Chapter 870 of the Florida Statutes," says Major Brantley Goodson of Tallahassee, chief of the Commission's Law Enforcement Division.

Goodson, Major J. O. Brown, Lakeland, regional manager of the Commission's 13-county South Florida Region, and Regional Enforcement Supervisor Captain David Starling, Lakeland, led the 35-man contingent at the college.

"St. Augustine was where a lot of our men got their initial training," says Major Brown. "It was a sort of 'baptism by fire'—they had to learn fast."

Since that time, wildlife officers have undergone intensive training and received proper riot control equipment. They have been called out for special duty at St. Petersburg, Gainesville, Live Oak, Tampa and in the state capital.

Each of the Commission's five regions provides four 5-man squads, which train regularly with other enforcement agencies and under Commission instructors like lieutenants Jim Brantly of West Palm Beach and Tom Shirley of Miami, both karate experts.

Former Air Policeman Al Conerly, Hillsborough County wildlife officer, is versed in mob control techniques and hand-to-hand combat.

In the case of real violence, four of the squad members are armed with riot guns (shotguns) and one with a .30 caliber carbine," says Goodson. "Other equipment includes gas masks, sidearms, handcuffs, flak vests and tear gas."

Photo By Art Runnels

First called to riot control duty by governor's orders five years ago, the wildlife officers are now fully equipped and trained for this work. Many had military police training.

In addition to the five-man teams, wildlife officers use a standard 13-man wedge formation designed to divide a crowd and encircle its leaders in a ring of officers.

"People seem surprised that we participate in riot control duty," Goodson says, but in many ways the very nature of our routine work prepares our officers for riot control duty."

"First, our men work outside under rugged conditions, day and night, and in all kinds of weather. They are tough," he says. "But most important in dealing with a mob, our officers are self-sufficient and self-confident . . . and they exercise above average self-restraint."

There are only about 125 wildlife officers throughout the state. Each works alone for the most part and deals with armed individuals on a daily basis.

"Because our officers are few and far between, they all know each other from one end of the state to the other. This familiarity makes them work well in teams when assembled for any type of special duty—riot control, search and rescue, evacuation duty, disaster area patrol, etc."

How do the officers feel about riot control duty?

"The feeling is distasteful at best," says Captain Starling, "but we are a tight-knit, proud organization and, like other enforcement agencies engaged in this duty, we are responsible first for the safety of the public. When we are called out we simply try to do an outstanding job."

Major Brown, who worked in the Everglades for years as a wildlife officer, touched on the philosophy behind the training given each new wildlife officer for the performance of his normal land and water patrol duties:

"If the person we are dealing with is nice, we try to be nicer. If he wants to get rough, we have to be rougher. Working alone, we must control the situation at all times," he says.

"And that is what riot control duty is all about, too," says Major Goodson. "When needed, Florida wildlife officers are ready for the job." ●

Backwater Bass

boating operations get a bit rougher when going through thick foliage for good fishing sessions in secluded grass and bonnet covered waters

By CHARLES WATERMAN

TWO, OR POSSIBLY even three motors on the stern of a fast fishing boat won't attract a lot of attention these days, but no two outfits are used exactly alike.

Right now, I am using a battered old aluminum boat with a 55-horse Johnson. The stern is quite wide but until they put some of the new motors through a reducing salon, things were pretty crowded back there. Some of them stand pretty tall but all of them are now fairly slim, important the way I use them.

Like many Florida fishermen, I frequently run some distance before starting to fish. On fresh water it's often 10 or 15 miles; on salt water it sometimes turns out to be more like 50 or 60 and if you want to do more than boat ride you need some horsepower. Since I generally use boats that are pretty light, my motors are usually in the medium power class—from 18 to 65 horsepower—for long fishing trips.

I am grumpily opposed to matched motors for most fishing. The idea, of course, is that you have two engines back there to give you extra speed on the way and get-home insurance if one of them quits you. My argument is that if you wipe off both lower units while thumping a sunken log or touring a manatee's back you are in big trouble, so I'd rather have one of the two engines either stashed in the boat or turned up where things won't happen to its pushing end. Better boatmen than I am won't agree but they can't convince me.

I like it with the main power plant in the transom center. 'Way off to one side I like a motor that's small and handy enough to maneuver with while fishing but big enough to get me home before I starve. Some kind of spare is only common sense if you go very far, and the spare has brought me home about half a dozen times from more than five miles.

Right now, the spare is a 9½-horse on what I call my "big boat." Actually, my 16-footer would be considered pretty small by most joy riders but it *is* wide.

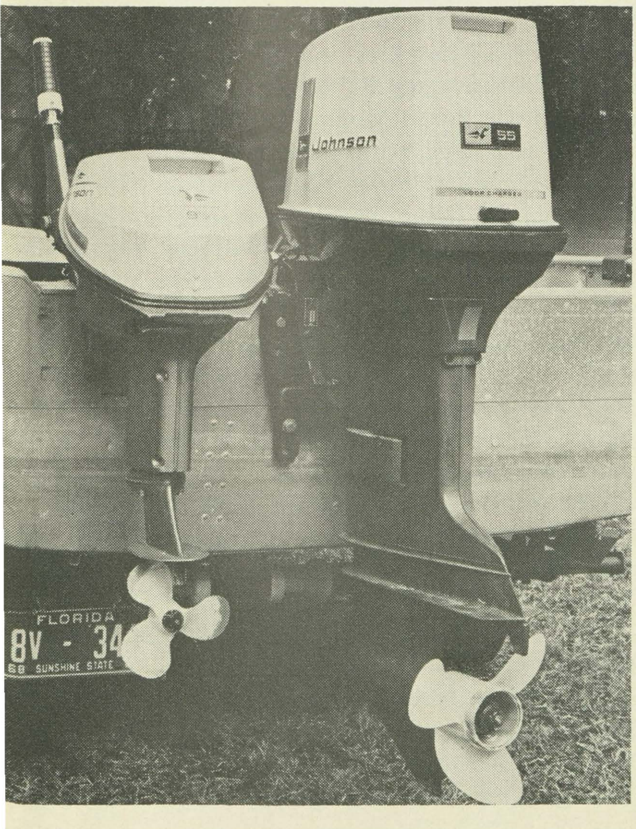
The 9½-horse Johnson is a pretty chubby little character, being "squoze" in from the top to shorten overall length. Until Johnson slimmed up the bigger models there wasn't room for the squatty one back there and I used a 6-horse.

The boat has a high transom and the 55-horse fits it but the 9½ is a short shaft motor, meaning that it can't quite get a good bite of water and has very little pull in reverse.

The idea is that the small motor isn't going to plane the boat, anyway, and the stern will be far enough down that the water pump works anyhow. If you open it up it will cavitate somewhat but by shifting the load back there it can be made to go pretty well. With the resultant shallow draft it is a gem in grass and weeds and over shallow oyster bars. Best of all, it is an excellent choice for use on rental boats, most of which don't have high transoms.

It takes a wide transom for this kind of operation. Remember that the main power plant is in the center and with some combinations I've used, the small motor had to be placed on the right hand side of the boat; the steering handle kept swatting the

(*Continued on next page*)



Compatible transom mates on the author's fishing boat. The short-shaft, 9½-horsepower motor works well for maneuvering, and operates good through general obstacles.

(*Continued from preceding page*)

big motor when it was on the left hand side. On the right side, the little motor is more difficult to operate and, since my steering wheel is on the right, the weight distribution was poor.

Some small motor users will lock the little engine in a straight-ahead position and then steer the boat by using a steering wheel with the big motor dead in the water and acting as a rudder. This rig is not nearly so responsive as handle steering but is very convenient for trolling where sharp turns and reverses are unnecessary.

I know one guide who uses two big engines, set well apart on the transom, and runs a small motor in between them, cocking it up when traveling fast.

There are several kinds of brackets which will adjust the depth of the small motor by moving it up and down, a few inches back of the transom proper. There is a piggyback arrangement whereby the small motor can be mounted back of the big engine and you steer with the regular wheel.

Electric motors are going great guns, especially among bass fishermen, and the forward-mounted electric is no longer a novelty. It's a good idea because you're a bit short on power and the boat won't be responsive enough with the little motor on the stern, especially if there's a breeze. Foot-controlled electrics are a big success and the big motor can be used to charge the battery.

With no underwater exhaust, of course, I have found the electrics to make less fuss than paddle or oars.

AFTER 50 years, I still wonder at the true addiction and devotion (pretty good words) of some fishermen. An article in a magazine will get them almost hysterical about a slightly different lure or method; even solid citizens who can accept a stock market plunge with coolness or walk by a new automobile model without a second glance.

After noting an almost monthly "revolutionary" fishing lure touted by some writer who went fishing *once* with it, I have become distinctly conservative in my approval of items guaranteed to fill the stringer.

This makes much of my stuff extremely dull, but is very helpful in getting to sleep at night as I know from experience just how much of a fishing riot can be caused by over-enthusiastic claims.

Take this case. Names have been changed to protect the guilty.

On a recent trip I found a certain plug which, on several succeeding days, proved highly superior to anything else we tried. Then, I found that several other fishermen had the same experience. Finally, I learned the bait was no longer manufactured and, as far as I could learn, most of the remaining stock (just a few plugs) was on sale in a single tackle store in Florida.

I'm being evasive about this because you can't get the darned thing without a lot of trouble and I'm sure someone will replace it with something just as good in a similar design before long.

Anyway, I did name it to several good fishermen and one of them immediately started a personal manufacturing project. He is going to make just a few—for himself. I'll bet the cost per plug will be astronomical. Construction is a little tricky.

Another veteran bass fisherman took one look at my crude sketch of the thing (I don't own one) and stalked out of my house with a strange look on his face. He was back soon, having driven *500 miles* to get one of his own.

That's what I mean.

I LEARNED A LOT from Walt Dineen and Forrest Ware a while back while on a bass fishing trip in the FCD conservation areas south of Lake Okeechobee.

Dineen is a fishery biologist for the FCD and Ware is in fisheries for the Game & Fresh Water Fish Commission. Since Ware is primarily a fly fisherman and I write too much about fly fishing anyway, I'm going to report on some of Dineen's ideas and methods, leaving Forrest out of it.

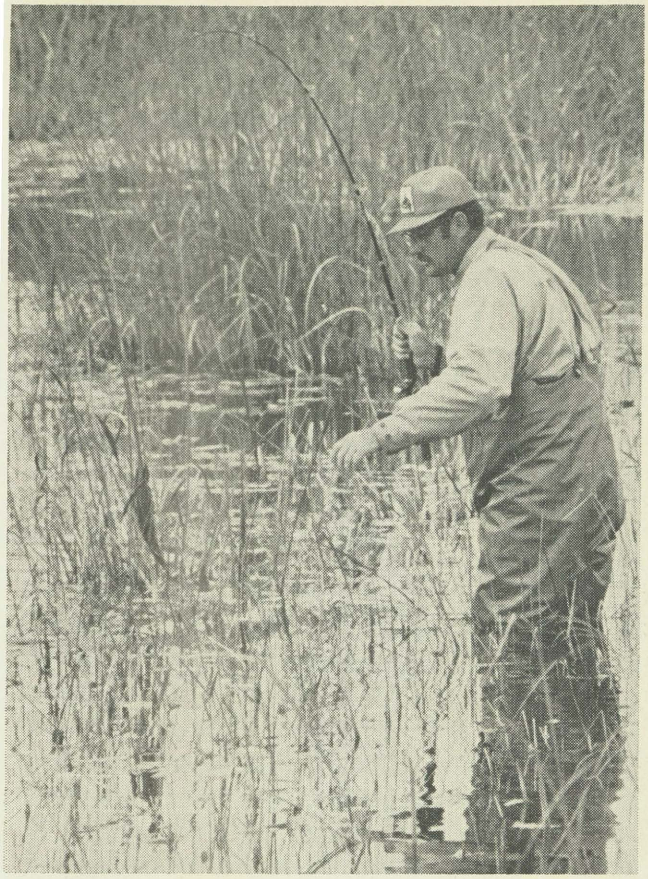
We used an airboat and fished well back in the thick foliage with waders and I watched Dineen for quite a while. He was catching a lot of bass, even though he called it a slow day.

He uses a free-spooling casting reel, monofilament line and light lures. Not many heavy cover fishermen use light lures for an obvious reason:

To horse bass out of bonnets and grass you need fairly heavy tackle and it is unsuitable for throwing light lures. I'd say most real shrubbery rakers seldom throw anything lighter than ½ ounce. Dineen was throwing quarter-ounce stuff.

He is, of course, an excellent fisherman with a lot of experience and he is a bass specialist. He admits that when he uses a rod light enough to throw his small lures he is handicapped with big fish, but he strongly believes that he gets more fish out of that stuff with his present outfit. He leans toward surface stuff and light spoons, believing that the bass you catch in wading water are so near the surface that they're easily startled by big lures. I think he is right although I've always used heavier stuff in thick cover, simply because I wanted a stiff rod.

Dineen is a pretty stealthy operator. There is something about working in heavy weeds and grass that causes most fishermen to get sloppy about wading and casting and they drive off a lot of fish. I believe it's because they know the fish can't see them and they ignore the fact that intertwined vegetation telegraphs movements very efficiently. Dineen makes fairly long casts, something I am reluctant to do because of the extra effort in case of a hangup, and the difficulty of getting a fish through



Walt Dineen fields a small bass in the kind of fishing country he prefers. He uses a fairly light rod, free-spool reel and small lures for much of his bass fishing. He is also a proficient fly tackle angling man.

the cover. He admits he loses a lot of lures but that's part of the game.

Two comments he made on bass in general:

In many thousands of bass he has opened up to check for feeding habits, there have been only a very few containing snakes. That was a surprise to me because I had always figured bass were constantly on the prowl for small water snakes and I thought this contributed to the success of the plastic worm as a bass lure.

"No," says Dineen. "Bass take those worms because they're soft and easy. Not because they represent any common type of food."

All of this came up because he sampled the stomach contents of a bass while I was with him and found a small snake. He was surprised.

The other comment concerned the weight of south Florida bass as compared to those further north. It's well known that the whoppers don't often come from the FCD conservation areas, even though they are some of the best bass fishing in the world.

Dineen's explanation is that the fish grow just as long but not as thick. Simply a matter of food conditions and the way they live.

Pay close attention to that rare specimen, the combination biologist and angler.

SPEAKING OF airboating in the Everglades country—and in other spots for that matter—

It is true that an airboat will get you to some secluded areas where few if any anglers ever go, but boat fishermen are wrong in writing off the thick vegetation of the back country. If you're willing to work you can go back through many airboat trails with a light motor and a pushpole.

Jack Horner, who fishes the sawgrass every winter and spends his summers in Illinois, uses a duckbill pushpole and a light johnboat. Most fishermen won't go far from the canals.

"After I push back three-quarters of a mile, I'm generally alone," says Horner.

In this day and age, not one out of a thousand casual fishermen would consider going that far by elbow power.

I like the slender johnboat for sawgrass operation. Canoes will go back all right but are seldom comfortable for stand-up poling and are not happy under the size of motor you need for long canal trips.

Wading wet in south Florida is generally comfortable after early April—not always. The majority of back-country bass fishermen wade at least part of the time, whether they go by pole or airboat.

It's uncommon to see a small skiff lashed to an airboat but it's a good idea.

EVERYBODY WEARS some words to death. Ten years ago Vic Dunaway of the Miami Herald commented to me that he had often wondered why a fish "lurks" in all fishing prose. He has something; I have never felt that quail "lurked" in a patch of brush or that a fisherman lurked in a boat but fish *do* seem to lurk in all of the outdoor writing I read.

Fish are always "wily" too and over-enthusiastic folks who write of them describe the gentlest and most suspicious nibble on a plastic worm as a "strike," calling forth visions of wild slashings.

By some twist of psychology fishermen somehow make themselves think that a fish is "fighting" them when he is simply trying to get the hell away. But I suppose a fish "maddened by the barb" might as well fight as anything else.

But if you tire of fishing literature there are words equally overworked in other writings. For example, I am sick to death of hearing that everything is "massive." This is such a delicious word to most news commentators and writers that you can almost see them rationing it so they won't use it more than once in each announcement or story. It's a pretty good word but it has reached lurking status to me and I wait in irritation for them to drop it in every news item. Someday I am going to close my writing career by telling of a massive bass lurking in a lair. ●

profits and promotion of the Conservation Philosophy

By ERNEST SWIFT
National Wildlife Federation

I ONCE SUBMITTED an article to one of the more popular outdoor magazines. The editor contacted me and said he regretted that he couldn't use the piece. I asked him if he questioned my facts. He replied: "I don't question your facts, but printing such brutal truths as you have set forth would lose me most of my advertisers."

That statement left me with the impression that outdoor magazines are not always printed as evangelistic media for promoting sound conservation philosophies in the public mind, but to pander to popular illusions and primarily for the profit motive.

I am well aware of the need for profits to sustain a business. But if there isn't some evangelistic sincerity along with the profit motive when using outdoor recreation as a profit media, the subject can become shabby subterfuge for editors calling their efforts conservation. Outdoor magazines mold public opinion, as do newspapers. They have a public duty to reflect a true picture in relation to the use of resources or they become a menace. There is no such thing as neutrality.

I look in vain for a change in editorial conscience, but find little if any. The outdoor sports magazines continue with the seasonal round of pheasant, grouse, elk, deer and bear hunting, with trips to the Canadian Arctic and Alaska; and occasional safaris to Africa and Asia.

Then there are the stereotyped dissertations on fresh water and oceanic fishing of all kinds, from sunfish to sailfish. Added to this is somebody's opinion on the proper care and use of guns, added dissertations on fishing and camping equipment both plain and fancy—useful and doubtful.

If game management, habitat restoration in relation to land capabilities, or some hard-nosed discussion of pesticides is given space, it is treated in a light and passing vein so that the hackles of potential advertisers are not rubbed the wrong way. If one does wish to read something on the more basic aspects of land husbandry for either economic or recreational uses, it is generally necessary to obtain bulletins from state or Federal agencies or literature issued by the private conservation agencies.

It seems both strange and lamentable that there cannot be a wedding of talents between professional writers of recreational stories with their flare for dramatics, and the professionals of resource husbandry. No doubt others have had my experience of being told that their literary efforts were too blunt with truth, therefore unprintable, and not being willing to jazz up the truth, their summations are not acceptable.

Some state agency leaders have been showing real courage in calling the turn on the careless and indiscriminate uses of pesticides and chemical poisons. If there have been many earth-shaking articles in the 1968 popular outdoor magazines that sold on the newsstands, damning pollution or pesticides or making these matters a continuous crusade, then I must have missed them while I was wiping my glasses. If such there were, I apologize.

Pollution could be one of the greatest crusades that outdoor magazines could tackle, and some newspapers are now giving the subject space—but not in the sports sections. They consider the magazine and news space and the billions of dollars that go into spectator sports, baseball, football, basketball, hockey, and the millions for golf, skiing and the like. No one complains—they are all proof of the invincibility of the Great Society—but when money is wanted for wetlands, air and water pollution, estuaries, forest management and soil erosion, the money source has a way of drying up.

Most state resource agencies' published bulletins and monthly magazines give a reasonably good mixture of fundamentals and the more popular type of reading. Some, however, still cling to the idea that to extend their influence they must bow to popular demands and issue glorified tourist brochures. It is a common trait of governors and legislators that the golden image must be presented to attract the tourist dollar.

Magazines published by the national conservation organizations all take off on a variety of national issues such as pesticides, the Redwoods, pollution and many others, even though they may differ somewhat in philosophies. At least they bring forth the pertinent issues for discussion. But even the readers of these literary efforts, many of whom consider themselves more or less esthetic-minded, cannot stand too much truth serum. They would rather dwell in a dream world of unreality than have these private organizations prick their conscience. It is also only fair to add that many of the affiliates of the Federation in their publications are conscious of the big picture and calling a spade a spade.

However, studying all the many projections discussed which directly or indirectly bear on the subject of using resources for recreation or economics, the foment of issues and the urgency for concrete accomplishments is more apparent every day. But only when more of the public begin to feel that getting on the conservation bandwagon is the popular thing to do, will greater progress be made. Herd instincts cannot be discounted. ●

Wildlife Officer Notes

A WIDELY-KNOWN Leesburg fur and hide dealer and his agent-buyer were arrested by wildlife officers in Sumter County on May 1st and charged with possession of 198 green (untanned) alligator hides, according to Major Brantley Goodson, chief of Law Enforcement Division, Game and Fresh Water Fish Commission, Tallahassee.

Arrested were William P. Bigham, 62, a farmer and rancher and the owner of Bigham Hide & Fur Company of Coleman, and Gordon Graham, 49, of Coleman, listed on arrest records as a truck driver.

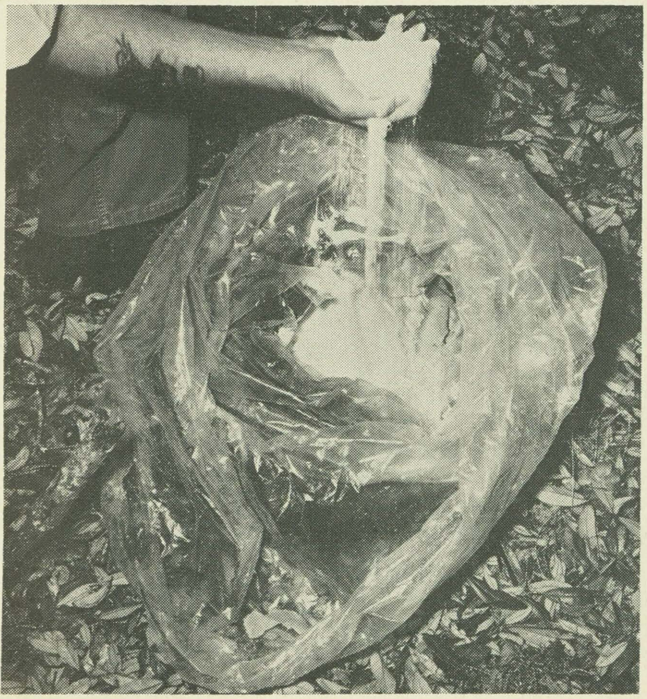
The pair were arrested without incident while loading burlap bags containing salted alligator skins into the trunk of an automobile belonging to Bigham. The hides had been concealed in a wooded area northeast of Coleman. Value of the cache, containing hides ranging from three to 12 feet in length, was estimated at between $2,500 and $3,000 by Lt. Roscoe Hamilton, area supervisor of law enforcement, Bushnell, who directed the investigation which led to the arrests.

Bigham and Graham entered pleas of not guilty at their arraignment in Sumter County Court May 13. They are free under bonds of $300 each. No trial date has been set.

Wildlife officers participating in the case were J. L. Adams, Bushnell; Bartow Wigglesworth, Wildwood; Thomas Croft, Ocoee; Harold Watson, Groveland, and James Moore of Clermont.

Lt. Hamilton and the five officers conducted a 3-month investigation in the case during which aircraft and unmarked cars were used in addition to regular patrol vehicles. "Drop-out" men—officers on foot on surveillance duty—communicated with the others by radio handsets, or walkie-talkies.

Photos By Jim Reed



A "carload" of illegal 'gator skins. In addition to skins, sacks of salt, below, to preserve green hides, were found.

According to Lt. Hamilton, about 10 suspect vehicles were kept under general surveillance by his officers since any of them might have been used to make the pick-up of the illegally taken hides. An area of about 12 miles around Coleman was systematically combed during the investigation before the hides were found stashed in the woods northeast of town.

"Then it became a matter of waiting," said Hamilton.

On the day the arrests were made, arresting officers Adams, Wigglesworth and Croft were "dropped out" by Lt. Hamilton at 4:00 A.M. Bigham and Graham were accosted at 3:30 that afternoon as they were loading the last of the widely scattered bundles of hides.

A quantity of salt, stored in plastic bags, was also found in the vicinity.

Commission records reveal Bigham has been arrested previously on identical charges. All occurred in Sumter County. He estreated a $100 bond in a 1963 case, was convicted and fined $100 in 1966, and had the charges dismissed in 1967 on grounds of illegal search.

The alligator has been a fully protected species since January 31, 1961, the date Florida's last legal commercial season on 'gators closed. Since that date, the unauthorized taking or possession of any alligator, crocodile, or black caiman, or any part thereof, or their nests or eggs, has been a violation of the law.

Florida Statute 372.662 provides a penalty of up to one year in the county jail or a fine of $1,000 for the unlawful sale, possession or transporting of alligators or alligator skins. ●

beautiful heron with the golden feet

The Snowy Egret

Back in the early 1900's the Snowy Egret had problems. Hat designers of the world of fashion decided that certain long, delicate feathers worn by the Egret made fine looking adornments for milady's hats. Properly called aigrettes, or, more commonly, plumes, they became quite fashionable and, unfortunate for the Snowy Egret, the milliners called for more and more. Anxious to capitalize on "a good thing," they were willing to pay good prices for good feathers.

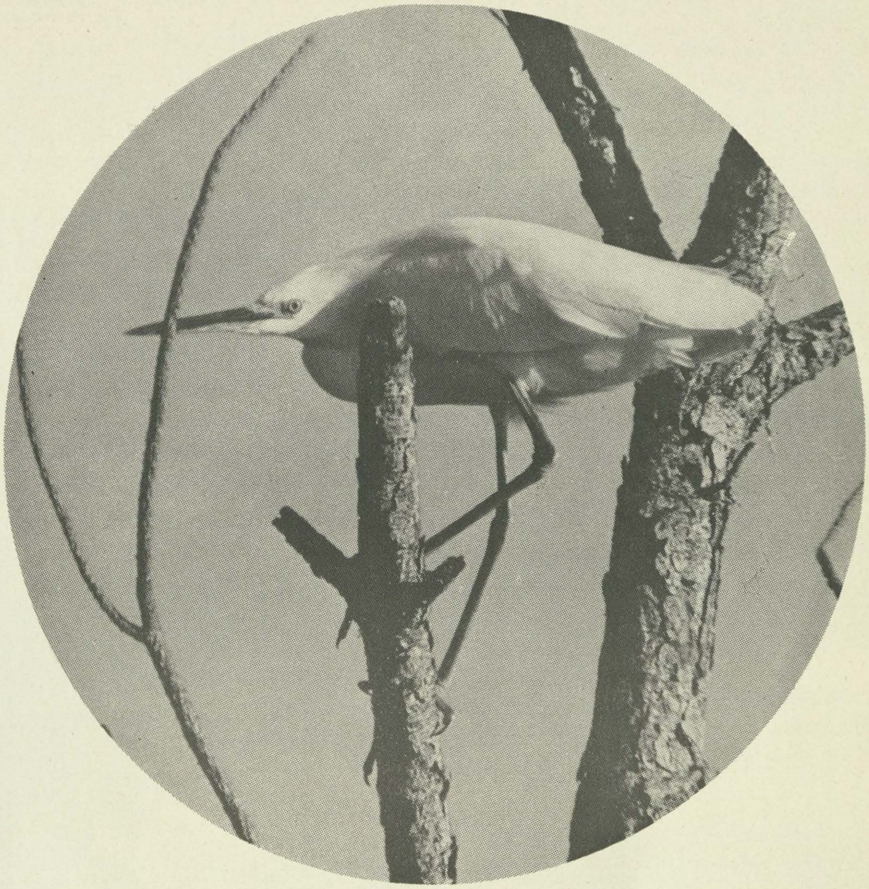
The dollar was king and it spoke loudly. "Plume hunters," eager to make a killing—in more ways than one—slaughtered adult Egrets by the hundreds of thousands in Florida rookeries and left like numbers of nestlings to die of starvation and exposure. (Aigrettes are worn by the Snowy principally during the nesting season.)

As you may have guessed, it wasn't long until the supply of Egrets began to dwindle. It was feared, in fact, they would be wiped out completely. The Snowy "then" was much like the American Alligator "now" as it sacrifices its hide to the alligator handbag and shoe manufacturers of the fashion world, and to those who buy and wear the finished products.

Anyway, thanks to the National Audubon Society and pressure from other conservation-minded people, laws were passed outlawing the shooting of Egrets and the use of Egret feathers in making hats. And the ladies, bless 'em, helped immensely by refusing to buy, and declining to wear, Egret feather hats. As a result, Snowy Egrets are common again, and are among our most beautiful wildlife attractions. Their esthetic value to Florida cannot be calculated.

Makers of alligator leather goods—and BUYERS of them—please note. A lesson can be learned from the story of the Snowy Egret. ●

The Snowy Egret is a medium size heron, about 24 inches tall, with a wingspan of three feet, and a weight of only about 12 ounces. It is most beautiful during the nesting months, March to July, when wearing plumes. Its yellow feet, black legs and black bill are important birdlife field marks of the Snowy.



A permanent resident throughout Florida, the Snowy Egret frequents both salt and fresh water, coastal marsh to roadside ditch. While the larger herons move slowly and patiently when feeding, even standing motionless for long periods, the Snowy is quite animated. It is always on the move in search of a meal, sometimes stirring the bottom with one foot and running quickly to capture any edible creature it may have disturbed. Frogs, minnows, crabs, aquatic insects, and other similar animals are deftly captured with quick thrusts of its sharp bill. The Snowy has a particular fondness for crayfish.

Photo Story

By WALLACE HUGHES

Photos By Art Hutt

The Incredible Crayfish

some of these creatures build "chimneys," resting in a hole at water level during the day, coming out to forage at night

Youngsters and crayfish are a common combination. "Danger" involved with capture, and the intriguing crayfish "construction," are perpetually fascinating. Crayfish live in a variety of situations. Dragging a dipnet, at right, beneath roots of floating vegetation will generally produce a few.

By **ART HUTT**

WITH THUMB and forefinger gingerly astride the crayfish's back, my youngster watched in awe as the armored crustacean struggled for freedom.

Long, paired antennae and four sets of walking legs waved wildly. Stout pincers—called chelae—snapped at the empty (fortunately!) air. Mouthparts moved menacingly. Tipped by a broad tail and lined with plume-like swimmerets, the abdomen jerked convulsively. Even the multi-faceted, dark eyes—at the ends of stout stalks—seemed to mirror the action.

"My gosh, Dad, it sure has a lot of moving parts," exclaimed my son.

It is possible that the crayfish—crawdad, crawcrab, crawdaddy, crawfish, creekcraw, craw, or crab—call it what you will—is one of nature's most fascinating, complex, and necessary creatures. Cousin, and nearly identical to the Atlantic lobster which reaches a length of two feet and a weight of 34 pounds, the fresh-water crayfish is measured in inches—up to six, and in ounces—up to four, living in the lakes, rivers, and streams—and frequently caves—over most of the world except Africa.

Biologically oriented high school and college students dissect the crayfish in their classrooms where it is commonly used to illustrate the Phylum Arthropoda (joint-footed animals such as the insects, spiders, centipedes, millepedes, and "walking worms," totalling more than 775,000 species) and the Class Crustacea, to which the crayfish belongs.

The crayfish's 19 pairs of "moving parts," (five on the head, eight on the thorax, six on the abdomen) are pointed out to advanced students as a classic example of "serial homology"—the modification of like structures into many forms to serve many purposes. Zoologists label these different-purposed crayfish structures as antennules, antennae, mandibles, maxillae, maxillipeds, chelae, walking legs, swimmerets, and uropods, yet all 38 are similarly constructed and arise from a similar two-branched appendage.

The incredible crayfish is a creature of many talents—admittedly many of them hidden.

What other animal is able to walk forward, backward, sideways—*and* obliquely—with ease and abandon? To say nothing of reversing at high speed by frequent and rapid tail flappings to flee from an enemy.

Crayfish prowl most actively at night, hunkering down during the daylight hours under a rock or vegetation, sensory antennae cocked outward to advise of any prey. Once grasped in the serrated edges of the pincers, a tiny minnow or insect is passed along to the tearing mandibles, then further shredded by the maxillae before the morsel is put into the mouth.

Crayfish dine on snails, tadpoles, minnows, insects, worms, tender vegetation—just about everything his claws or mouthparts will fit around. Small edible materials—like algae—are carried mouthward by the current set up by the swimmerets on the abdomen, too.

Humans tend to overlook the worthy services that many creatures of nature afford us, noticing only the obvious and the pleasant. Because of his marked preference for dead animal matter, the crayfish is ranked by biologists as a "sanitary engineer." The task he performs is a vital one.

Such choice tidbits are located through sensory "radar" on the hairs of the antennules, ends of the antennae, around the mouthparts, and at the points of the pincers. They "scan" the surroundings chemi-

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cally, then direct the quivering and anticipating crayfish toward the strongest "signal."

Those species of crayfish which live in holes, tipped by mud chimneys, in low pastures and marshes, never visiting a stream or lake but relying upon ground moisture to keep their gills moist, are mainly vegetarians, sallying forth on rainy spring nights to munch, in Alabama and Mississippi particularly, on tender rice and corn shoots. They have interfered or completely destroyed production over 1,000 square miles in these states. Most can live for eight-to-nine months without food. Control is by creosote squirted into their burrows.

As crayfish eat, they are also eaten, being considered an important link in the food chain for fish, otters, mink, raccoons, bears, armadillos, alligators, wading birds, ducks, turtles, man. At the New York zoo, they're fed to the duck-billed platypusses.

Although I'm reasonably sure the crayfish has not been concerned, nature has been unkind by placing his excretory pore directly in front of his mouth. Body and blood wastes—collected internally by unusual "green glands"—are eliminated here.

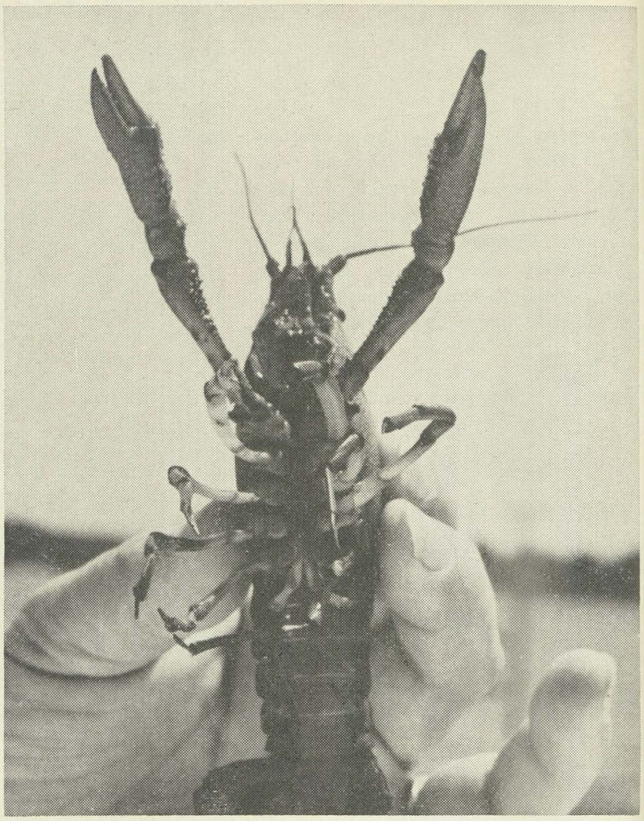
"No wonder he swims backwards so readily," one worried student quipped.

Balancing organisms, termed statocysts, located at the base of the antennules, keep this crusty crustacean on an even keel. Sand grains pressing by gravity against sensory hairs remind the crayfish which side is "up." Flushing these grains out, and substituting iron filings causes the confused animal to flip over on its back when a magnet is passed overhead.

When a "moving part" is grasped by a predator, to free itself, the crayfish practices "self-amputation" or autotomy. Each appendage has a fracturing line with a built-in diaphragm to prevent excess loss of blood. When it is broken off, the appendage is simply regrown.

Crayfish reproduction, involved and unique, usually commences in early spring with the male depositing his sperm in receptacles on the female's abdomen. The sperm is sometimes stored temporarily but when egg-laying time comes, the female cleans her abdomen thoroughly, lies on her back, then secretes a sticky "glair."

From 200-to-400 eggs, fertilized by the stored sperm, follow to be "glair-glued" on the female's abdomen, where they hang like berries. The "in berry" female retires, keeping the eggs aerated by the movement of her swimmerets. Miniature crayfish hatch in five-to-six weeks but remain attached to the mother's swimmerets through several molts. Finally, the youngsters drop off to become free swimmers. Growth is to two inches during the first year: a typical life span covers three-to-five years.



Photos By Art Hutt

With 19 pairs of "moving parts," crayfish is a literal "busybody." Broad tail will jet them backwards when in danger. Except for size and salt, the freshwater crayfish, below, is dead ringer for up-to-34-pound lobster.

Unlike the higher animals which wear their skeletons on the inside, the crayfish wears his on the *outside*. When growth occurs, the rigid outer exoskeleton, composed mostly of chitin, must be discarded and replaced with a larger shell.

In this molting, the hard skeleton sutures across the top and the crayfish, now a defenseless "soft craw," struggles out. This is the most dangerous time of a crayfish's life—body covering soft, pincers inefficient, locomotion awkward, muscles weak—a time when the crayfish tries desperately to stay hidden from all eyes. Gradually, through taking in water, an increase in bulk occurs, the shell finally hardens, and the crayfish is ready to face all comers —until the next molt!

When young, crayfish molt many times a year, less frequently as they grow older.

Crayfish have been able to adapt themselves to living in caves. Such crayfish are usually small, slender, with pale, thin body coverings. Their sight is gone; they live only by feel and smell, with antennae and other appendages modified as sensory organs.

Mammoth Cave in Kentucky, Nickajack Cave in eastern Tennessee and a few caves of the Ozarks region of Missouri host them. In Florida, they're found in Gum Cave (Citrus County) and Squirrel Chimney and Goat Sink (both in Alachua County).

Some of these in-the-dark crayfish were initially overlooked because they were hanging onto the *ceilings* of the underwater caverns!

While crayfish are more highly regarded as gourmet items in European countries, the American housewife apparently does not find them particularly appealing, except in the tri-state area of Alabama, Mississippi, and Louisiana, with New Orleans the center of the crayfish cookery.

Crayfish bisque (a thick soup) is a world-famous New Orleans specialty, but crayfish simply boiled like shrimp is a favored standby. Many people try them in stew, salads, cocktails, pies, or fry them. According to Cecil LaCaze, Louisiana crayfish expert, natives in New Guinea use them as a primary source of protein.

The main species of crayfish harvested in Louisiana are the red swamp crayfish and the white river crayfish. They're either caught "wild" at the rate of 2,000,000 pounds per year or cultivated at rates up to 1,000 pounds per acre, with over 6,000 acres in five parishes just west of the Atchafalaya Basin.

Wild crayfish are harvested from canals, ditches, and rice fields with traps and nets but one of the best methods is still the youngster with a piece of meat on the end of a string.

Professional raisers frequently rotate rice and crayfish crops. Others use open or wooded ponds, relying upon algae or tender vegetation for their charges to chew on. Ideal water depth ranges from 12 to 30 inches.

Commercial harvesting is by traps or lift nets, baited with beef melt. Winter harvests are most lucrative, with a pound of peeled tails selling for close to $3.00. It takes about 7 pounds of bulk crayfish to produce one pound of peeled tails, however.

The crayfish tails I've eaten came from the reservoir at the Game and Fresh Water Fish Commission Richloam Hatchery. Steve Dobos, Fish Management Specialist, uses the funnel type wire trap baited with meat scraps to haul them in, at times, by the dozens.

Boiled in salted water for about 5 minutes, then peeled and dunked in melted butter, the tails were a firm, white, sweet and flavorful reminder of salt-water lobster meat. Wayne Pennington, also a Fish Management Specialist at Richloam, says even his four children love them this way.

A. D. "Bob" Aldrich, Hatchery Supervisor has tried and liked various crayfish preparations across the Gulf states and declares that "they're better than shrimp."

So, if you get a chance to boil up a mess of tails, don't pass it up. They could be a pleasant surprise.

The huge Columbia River crayfish, harvested in Washington and Oregon, have a high economic value also, frequently ending up in California as "short lobsters!"

An ecological value of the crayfish is commonly overlooked. Like the alligator's habit of building wallow holes during low water which carry over breeding stocks of insects and fish for future normal water levels, the crayfish, in a smaller way, of course, contributes similarly in building its watery burrows. Tiny organisms frequently survive in these watery tunnels during times of drought to emerge and reproduce in the transient ponds again.

Except for his belligerent attitude and a non-bloodletting pinch (you cut your own skin when you jerk your finger from his rough-edged claws)

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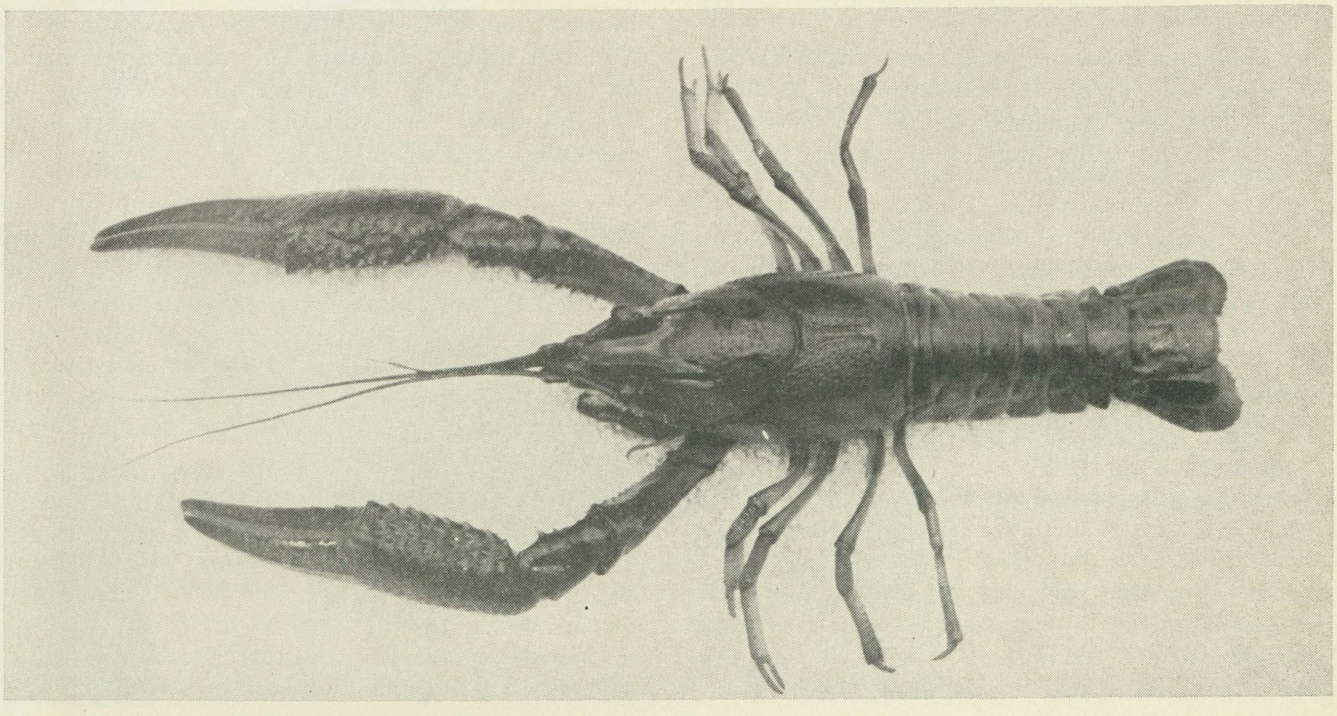

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now and then, the cantankerous crayfish is relatively harmless except in some areas of Japan, China, the South Pacific, and northern South America where it does act as a secondary intermediate host (the snail is first) to a lung fluke (*Paragonimus westermani*) which causes pulmonary disorders in humans through eating insufficiently cooked crayfish.

But if you stay away from the native customs of eating raw crayfish (and crabs) dipped in wine or vinegar or covered with salt, you'll have no trouble.

Another fluke, *P. kellicoti,* uses the crayfish as a secondary intermediate host and has been found in the United States in Michigan mink and Tennessee opposums.

Cooking solves all problems, however.

In Hawaii, Australia, and Japan they're destructive to crops, particularly in Japan where the red swamp crayfish was imported as food for bullfrogs. The project—as do many tamperings with nature—backfired. The crayfish were eating too many young rice shoots.

Properly presented crayfish make an ideal bait for nearly all kinds of fresh-water fish. Depending upon the size of the offering, they'll attract anything from a bluegill to a channel cat.

They can be used alive for game fish by running a hook through the abdomen, point up or point down, then tossing the bait out into a likely spot with or without a float.

But in using live crayfish, pull the pincers off. A fish is less reluctant to approach a defenseless mouthful.

With dead crayfish, thread the hook all the way through the bait, starting at the tail and coming out on the bottom side of the head. Or for catfish, tear off and peel the tail, then work it on the hook. You might want to wrap thread around it to secure it.

A small bass I recently caught in a central Florida Lake had four big crayfish crammed into its stomach. Others have commonly yielded one or two.

A dipnet slid under and rubbed against floating hyacinths will usually gather a few crayfish for bait. Funnel traps, baited with a fish head or meat scraps, should be shaped so that the entrance lies flat on the bottom. The funnel hole has to be wide enough to accommodate the width of a crayfish, however.

A "soft craw" is a prime bait, much sought after by fish and fishermen. While secretive and hard to find at this stage, they can be probed from under rocks and vegetation. If you catch a hardshell all mottled and unthrifty looking, you can count on his being ready to molt. Put him in a separate container, checking every eight hours or so.

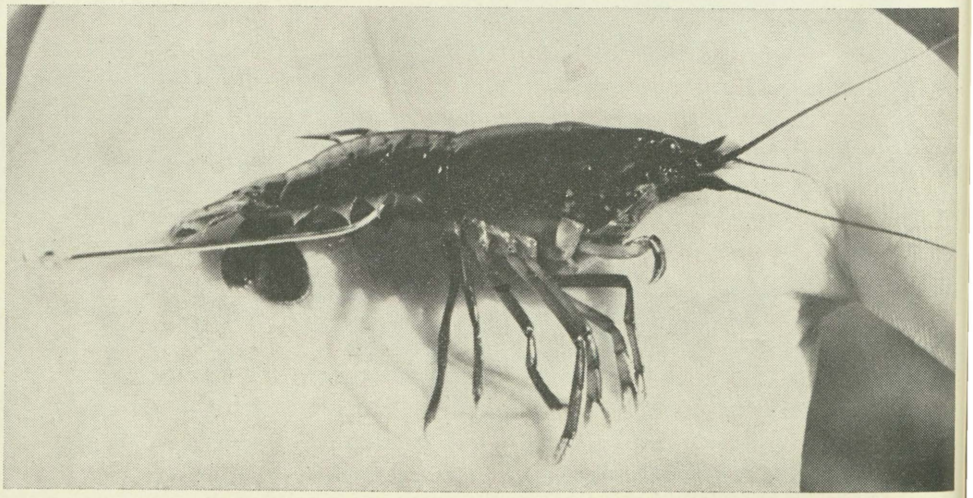
Crayfish are hardy and present no big storage problems for the fisherman. Since they absorb oxygen from water through their gills, use an "air-breathing" bucket. Lacking that, an area where they can crawl out of the water if the oxygen supply in the water becomes depleted is necessary. Damp moss, wet grass, a moist burlap sack—all will hold crayfish successfully. The important thing is to keep their gills damp.

Keep soft craws in containers separated from hard craws, though. They're delicate and easily maimed by an aggressive hardshell.

While I'm no authority on using crayfish for bait, it appears obvious that, given a consistent supply, they could produce some good catches in Florida.

There are over 300 species of fresh-water crayfish worldwide, with over 135 species in the United States. West of the Rockies, the five species of *Astacus* predominate. East of the Rockies, the remaining members belong mainly to the *Cambarinae,* of which Florida boasts over 40 species.

Each animal in the universe occupies its own little niche, filling it to one degree of importance or another. The fresh-water crayfish serves us well as an entertainer of small boys who delight, as I did, in capturing them, or as food for humans, as food for other higher animals, as a valuable scavenger, as bait for fishing, and above all, with all of his "moving parts," as a curiosity and an object of incredibility in nature's scheme. ●



Hotshot fish bait in many states, crayfish is not widely used here in Florida. Hooked through tail, with the pincers removed, this one could make out as good bass bait.

The bumblebee is an underground nester. Colonies are quite small and they are re-established each spring. Though larger than honey bees and wasps, bumblebees are no more toxic. They are very useful in helping fertilize flowers, vegetables and fruit by pollination. They sting in self-defense.

Photo By Wallace Hughes

the tiny critters may crawl, creep or fly—but it pays to be careful when outdoors—the attack results can prove to be painful and risky

insect stings can be dangerous

By GENE SMITH

EVERY YEAR many persons—hunters, fishermen, campers, gardeners—are stung by bees, wasps, hornets and yellow jackets, all members of a group of insects known as *Hymenoptera,* which also includes the ants. Reactions to these stings vary from simple discomfort to acute *allergic,* and even *toxic,* reactions which have sometimes resulted in death.

In normal persons there is usually only the pain of being stung, some local swelling, and possibly a little itching at the site when the pain goes away. In moderately sensitive individuals reactions may appear in more alarming forms—widespread swellings, hives, wheezing, faintness, shortness of breath, abdominal cramps, vomiting, nasal discharge, tightness in the throat, aching joints, and even diarrhea. A highly allergic person can sustain one sting and go into shock which can prove fatal in a matter of minutes, but, fortunately, these extreme reactions are rare.

Today, according to the Allergy Foundation of America, medical technology has made it possible to lessen the dangers from insect stings by immunizing individuals who need it through a series of injections.

Frequently, the degree of sensitiveness in the allergic person increases with time after succeeding stings. Several insect stings at once may speed up the allergic response and increase the severity of the victim's reaction. Case history studies indicate there is a higher incidence of insect sting reaction among individuals with other allergies, or "allergic tendencies," than among persons without any allergies.

But aside from allergies, another kind of reaction, the toxic reaction, can result from insect stings. In young children particularly, a toxic reaction is very dangerous. Such a reaction depends upon the toxic properties of the venom involved and in this respect resembles snakebite.

A toxic reaction may result after multiple stings—30 or more at one time, perhaps. It occurs because a sufficient quantity of venom is injected into the individual for him to become poisoned.

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Venom attacks the red blood cells or the nervous system to produce hemorrhages, anemia, or nerve paralysis.

Persons who have shown unusual sensitivity to stings from bees, wasps, yellow jackets or hornets should consult their physicians as to measures to be undertaken for testing of their sensitivity and immunization treatment. The treatment is a prolonged process but is well worth the time and money spent since it is very often a lifesaving procedure.

In one study reported by the Allergy Foundation involving over 3,000 insect sting-allergic persons, there was clear evidence that preventive injection therapy is helpful. Progression to more serious reactions was halted in over 97% of the patients treated and in most instances responses were noticeably lessened or reduced to that of normal persons. Many who were given preventive shots maintained their protection for many years after treatment was stopped. However, a few lost their protection in less than a year.

Despite the success of desensitization treatment it is not believed that everyone who has insect sting allergy necessarily needs this form of treatment. People whose reactions are limited to the site of the sting and surrounding tissues usually do not require immunization. For most persons the wisest course will be prescription drugs (usually cortisone or antihistamines) to be taken orally at the time of the sting. But in cases of more serious reactions, factors such as the likelihood of the person being re-stung, severity of the reaction, and the difficulty of reaching a doctor must be taken into consideration. The type of treatment which is best is highly individualized and the final decision must be made by a doctor.

Photos By Wallace Hughes

The paper wasps are unusually nervous creatures. Their mass stings are quite painful to any; serious to many. Best precaution is a sharp eye. Avoid a confrontation.

The honey bee is one of the most common—and useful—of the stinging insects. It performs an invaluable service to mankind by pollinating various plants as it travels from place to place gathering nectar and pollen for use in the manufacture of honey, which is a commercially valuable product in the world food market.

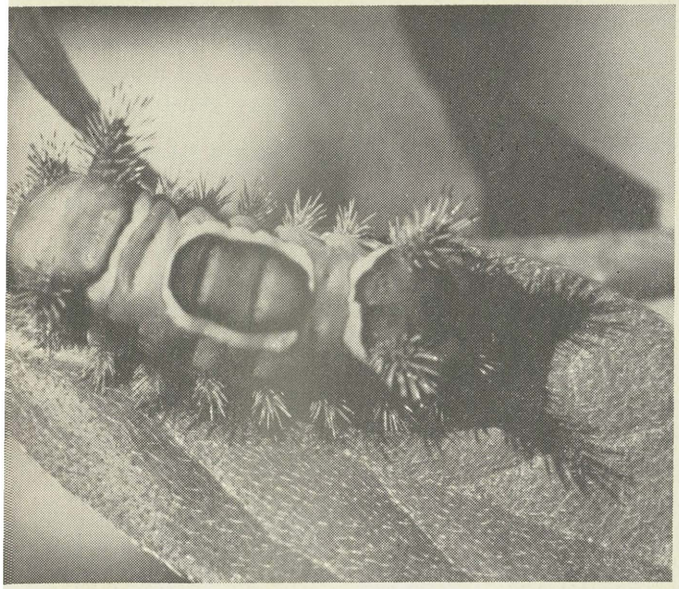
It is the only one of the common bees that loses its life when it stings. Its stinger, being barbed, gets caught in the flesh and in trying to free itself, the bee is injured internally and dies.

The wasp clan includes hornets, yellow jackets, and, of course, wasps. The most familiar of these are the paper wasps, which build their flat, uncovered, paper nests under the eaves of our houses and barns or in the shrubbery beside our walkways. All wasps are extremely nervous insects. They will attack in defense of their nests at the slightest provocation—far quicker than will the guards who defend every honey bee colony.

Hornets build the big, football-shaped, covered paper nests, usually in the deep woods, high up in trees. These insects are the master paper-makers among wasps. Their nests sometimes are large enough to house over 10,000 hornets.

Yellow jackets are the worst offenders of gardeners and farmers. These build their nests underground, sometimes in an abandoned field mouse nest, in a rock wall, or under a rotten log. (Bumble bees, too, build underground nests.) A trowel or shovel penetrating the nest cavity, or even a footstep in the vicinity of a nest, will infuriate the inhabitants, who are often stinging away before the victim even knows he has trespassed! A careful search of the area at night, by flashlight, will safely reveal the source of the trouble, which will be a tiny entrance hole with one or more guards sitting on the runway. A few doses of gasoline, kerosene, or lye will kill them.

Electric hedge clippers, tractors, power mowers—either is apt to produce a sneak attack from yellow jackets. Gardening should be done cautiously by any person, but insect sting-allergic individuals should be doubly alert. The same should apply to sportsmen, of course.



Brightly colored caterpillars, like this saddleback, are usually stinging types. Avoid touching the hairs, which can cause good stings. Youngsters, attracted by the conspicuous markings and gaudy colors of these larvae, most often are their victims—the hairs can cause severe pain.

There are a few other precautions which may help the family avoid insect stings this summer. Any sort of food will attract bees and wasps. Outdoor cooking and eating, feeding pets out-of-doors, leaving garbage cans uncovered and dirty on the outside, leaving fruit or melons exposed, even the dribble of a child's popsicle or ice cream cone—all will bring the bees in short order.

Keep foods covered until time to eat and clean up immediately after the picnic or cookout. Keep garbage containers clean and capped. If a bee or wasp alights on you or nearby, keep calm. Move slowly if at all and your chances of being stung will be greatly reduced. Excited beating and flailing may only provoke an attack.

If an insect enters your automobile the same advice applies. For safety's sake, keep calm. Don't try to kill a bug while you're driving and don't allow yourself to be distracted by the excited reactions of your passengers. Pull over in a safe place and then deal with the situation. Many, many avoidable traffic accidents have been caused by the panic and distraction of a stray insect entering a car. And far more often than not the culprit wasn't even a stinging type.

By way of personal precautions against stings, remember that perfumes, hair sprays and tonics, sun tan lotion and other cosmetics attract insects. Avoid them if you're planning a nature walk or a stint in the garden.

Brightly colored clothing, too, is said to attract bees and wasps, especially flowery prints. Avoid these and solid blacks. Light colors—white, tan, pale green and khaki—are thought neither to attract nor antagonize insects.

Except on a clean beach, shoes should always be worn when enjoying the out-of-doors. Sandals do not give adequate protection against honey bees when, for example, the wearer is tramping through a field of clover.

If you *are* stung by a honey bee, remember that among the *Hymenoptera* it alone leaves its stinger, which, in most cases, will have a venom sac attached. This sac continues to pump out its venom for several minutes after becoming detached from the bee's abdomen. So, the quicker the stinger and sac are removed from the skin the better for the victim. This should be done with one swift flick of the fingernail or a knife blade. Do not pinch the sac between the fingers, since this will only inject its full contents into the skin.

Hornets, yellow jackets and wasps can only be brushed off as quickly as possible—while making a strategic withdrawal from the immediate vicinity.

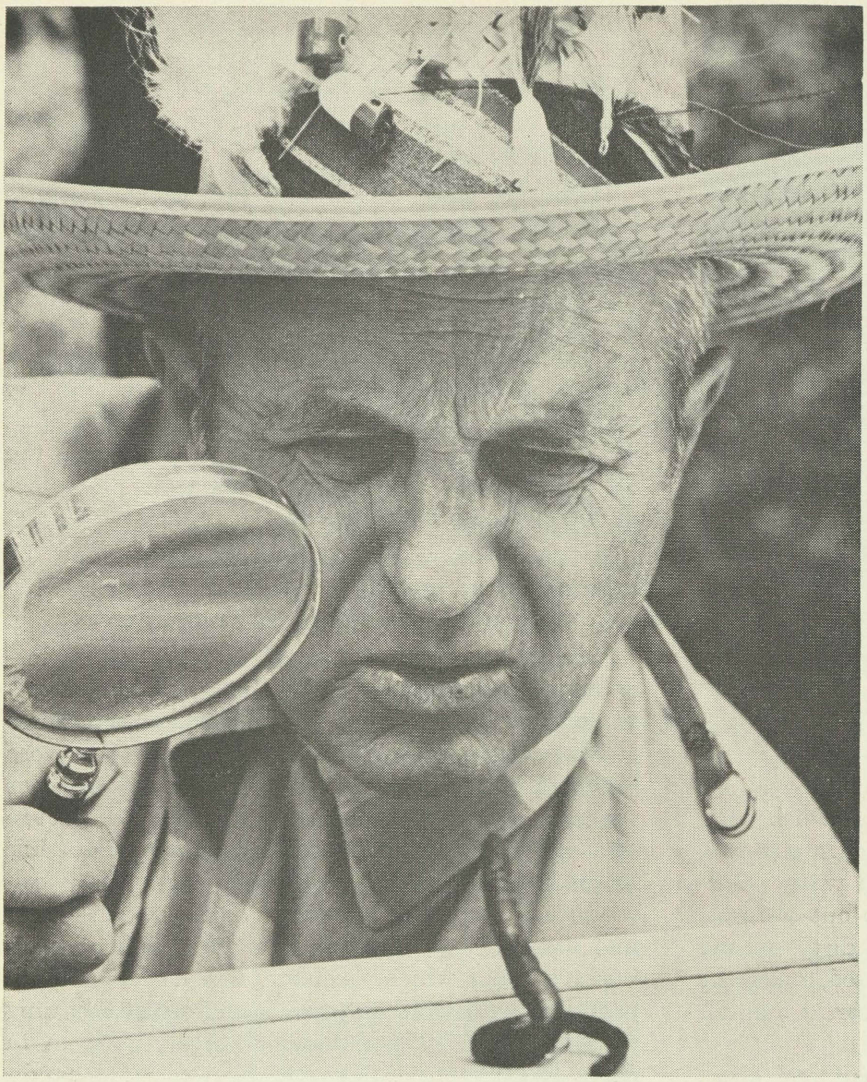
Finally, remember to avoid contact with caterpillars, especially those with hairs and horny projections on their bodies. These, too, can produce painful reactions. Their stings are much like those produced by some species of nettles. Sometimes the stinging "hairs" of certain caterpillars (larvae of moths and butterflies, *Lepidoptera*) and adult moths are carried about by the wind. They can produce a severe dermatitis, or rash, when coming into contact with exposed skin. The hollow hairs inject a toxin which, around the eyes and mouth particularly, can be quite serious. Intense, burning pain, followed by symptoms of paralysis, even in cases of caterpillar stings on the arms and hands, are quite common.

Emergency medical treatment should always be sought for stings of any kind on the head or face. And children should be taught to leave spiders, bees, wasps and "wooly worms" alone!

If you'd like to know more about insect sting allergies or related subjects, write to the Allergy Foundation of America, 801 Second Avenue, New York, N.Y. 10017. It is a national voluntary health organization, supported by voluntary gifts, established to unite the public, the medical profession, research scientists and public health workers in a campaign to solve the health problems posed by all types of allergic diseases.

Regarding insect sting allergy itself, you may also wish to write to the American Academy of Allergy, 756 Milwaukee Street, Milwaukee, Wisconsin 53202, attention of the Committee on Insect Stings.

In the meantime, enjoy the great outdoors this summer. Don't lock yourself out of the fun and relaxation outdoor recreation affords. Good common sense and a sharp lookout when out under the sky usually will prevent trouble from the bugs and bees. ●



no one can deny there is plenty of skill when it comes to fishing with soft-wiggle lures, but there may be many of us who lack patience and prefer the "older" methods

the WORM and I

By **CHARLES WATERMAN**

I WOULD RATHER not fish with a plastic worm! Oh, I'd do it if there was no other kind of bass fishing to be had, but I am not screaming and scratching to get to the worm counter.

Since some of my best friends build plastic worms for a living and since other friends fish with virtually nothing else, this soul talk may take me off some Christmas lists but it is time I stood up and was counted.

I am not competing with the danged things. More than 10 years ago I learned that, under most circumstances, the skilled worm worker can get up later and catch more fish than I do with plugs or flies. I am a little ashamed of my old friend, the black bass, when he actually refuses to let go of a worm, even though the hook isn't stuck in him, and I have turned my head away sadly when I have seen a yearling bass actually jump on a tight line, hanging to the hookless tail of a black plastic worm. Even when he finds there is a 200-pound man on the other end, a half-pound bass is willing to fight for a thing he doesn't recognize and never saw before in his life. It is almost as if they built the bass to go with the worms.

It may sound like an unfair crack at what's probably the world's most deadly black bass artificial, but I have watched a number of worm fishermen reach an hour of decision. There seems to come a time in the life of every worm fisherman when he has it down pat and figures there's little more to learn. As I see it, he has three choices:

He can continue fishing worms with increasing skill and bask in the admiration of ordinary fishing mortals for the rest of his days while catching a devil of a lot of bass.

He can decide he's mastered the worm phase and look around for a kind of fishing that would be more challenging.

He can give up fishing.

And I know fishermen who have done all three. The most pathetic case was the guy who had quit. He'd retired to Florida at an early age because of a health problem. Being an investigative type he picked a nearby lake and studied its bottom, its vegetation and its daily moods. He found plastic worms worked best and in less than two years he became deadly. At the end of two years he told me he knew all he wanted to know about fishing and was giving it up completely because the challenge was gone.

"I can watch the birds and bees without fishing," he said—but he confessed to being bored.

I have been laughed at because I insisted on fishing certain kinds of tackle when something else was catching more fish. I am, of course, a fishing snob, but came by it honestly. Modest though my abilities may be I have spent a lot of time trying to catch fish since I wrote my first fishing column in 1934. Until I wrote that first one I fished only in my spare time, but after that things got pretty serious. The upshot of it all is that I figure I'll get them tomorrow or next week if I don't get them today. Lots of better fishermen than I am haven't had a chance to fish that much and are probably more interested in the score.

But there are all gradations of fishing snobbery and I am going to give an illustration or two. The editor thought this was going to be an article on how to fish the plastic worm and I am going to get to that soon but I would prefer to first prove what a whizzer of a fishing psychologist I am.

Now then: The other day I went fishing with Ray Donnersberger who is a pure fly fisherman—I was about to say *fly fisherman, pure and simple* but there is nothing simple about this guy's approach to fly fishing. He's dedicated and knows the way.

We went fishing at a time when the worm and shiner fishermen were doing very well and, for some reason, fly fishing was terrible. Ray started out with surface popping bugs and stayed with them. He fished carefully from early morning until late evening and if during that time he let up in his careful casting or his meticulous lure manipulation, I didn't catch him at it.

Every little bit he would ask my advice about how to work his bug. Of course I had no suggestions because by noon he had pulled every sneaky fly fishing trick I'd heard of.

At 5 o'clock, Ray, who had made a 100-mile trip for that day's fishing, was still laying them out there and he hadn't had a single strike. Not a swirl, not a boil, not a splash.

Then at 5:15 p.m., he had a real falling bridge wallop on a little popping bug with rubber legs. He picked up the rod tip and was pretty busy for a little while holding his fish out of the grass but when he landed it, it weighed 8½ pounds, which I consider a pretty good day's work. We kidded him a little and named him "Juan Streick" (One Strike), but he took the whole thing in stride as if he knew he'd catch a big bass if he just kept on pitching.

Now the point is that he didn't want to catch a fish on anything but his fly rod, and time or effort

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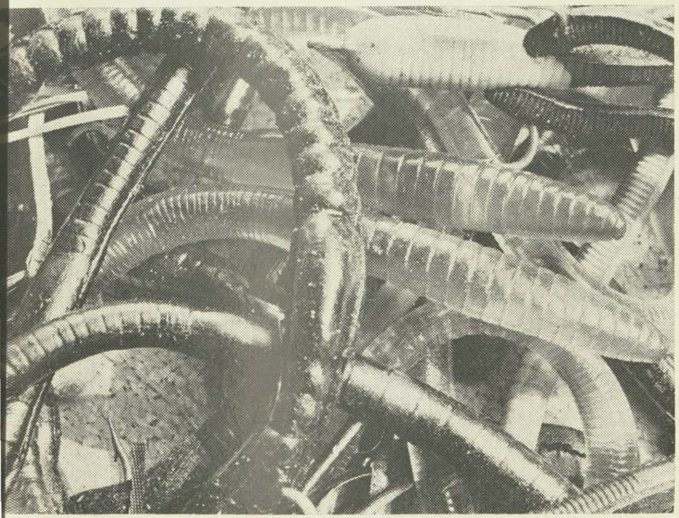
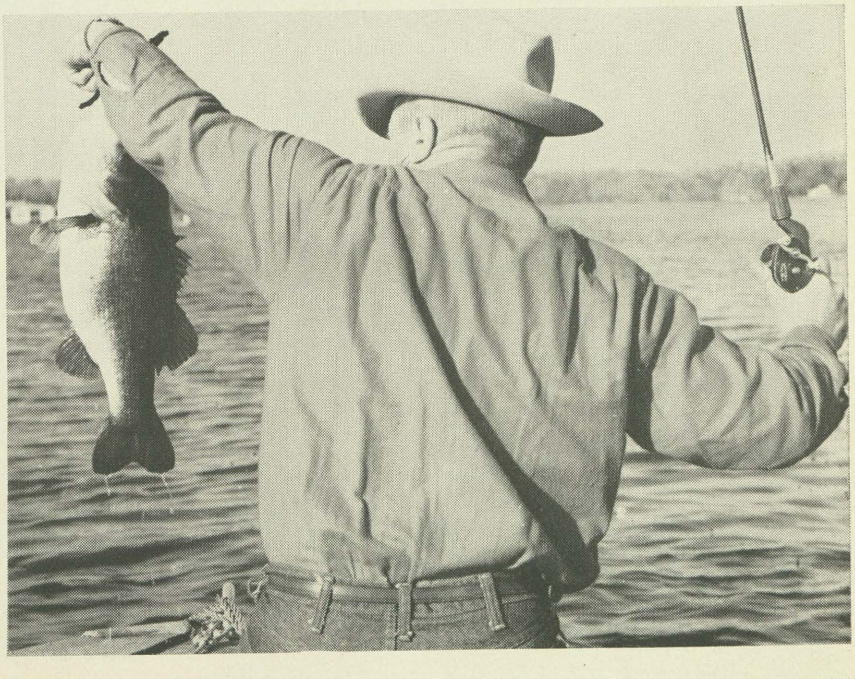




The author, above left, has a look at his fishing tormentor—the plastic worm. Like the other fly fishermen, he takes a dim, if rather close view. The sight above is strictly plastic worms. Worms are easiest to operate, right, where bottom is smooth.

(*Continued from preceding page*)

meant very little. He couldn't have cared less about the big catches being made on shiners or worms.

Plastic worms have not been kind to me. There was the time when a lady sat in one end of a boat and caught and released 26 bass on plastic worms, and I caught one in the other end. Her husband, who did the paddling, said I needn't feel badly, that she was a pretty good worm fisherman.

There was the time when I anchored on a schooling ground in the St. Johns River and caught two bass with my plug rod while a guy anchored 50 feet away simply worked plastic worms along the bottom and caught maybe 30, turning them loose.

There was the time I went out to an Everglades pond with John Wilhelm and Ray Stephens. It looked like a fly rod pond to me but I guess it wasn't. They caught some bass on worms and did it in what I considered an insulting manner (I find any other fisherman who is catching more fish tends to be just a little insulting).

So what's new in worm fishing?

Well, with me, one of the newest things is worm color. I am amazed at the selectivity of bass when it comes to worm color; something that I wouldn't go for at all a few years ago. When certain fishermen began to insist on purple worms for bass, and swore they were much better than black worms, I figured the fisherman had stronger color preferences than the fish. Like most things in lure selection there wasn't much solid proof.

Then a friend of mine who tends to get scientific about everything found a ready made test laboratory. He located a little underwater bar that was loaded with small bass and he was able to catch one every cast with plastic worm, Color A. After he'd caught all he wanted, he started experimenting with other colors. One color would catch *no* bass at all and after he'd have a dozen fruitless casts with it he'd put on his original killer. Then he'd get a fish every cast and would change back again. No fish.

So when he told me about this I immediately began working up learned theories about what the worms resembled and why one color worked in a given situation when another wouldn't. My conclusions weren't too sharp because the same kind of bass in another pond, and maybe in the same pond on a different day, wanted another color.

Whenever two or more worm fishermen get together they generally start talking about what a plastic worm represents. If it's in lizard country it represents lizards, they say, and if it's in big worm country they say it represents worms (that's not startling), and if there are quite a few snakes around they say it represents a snake.

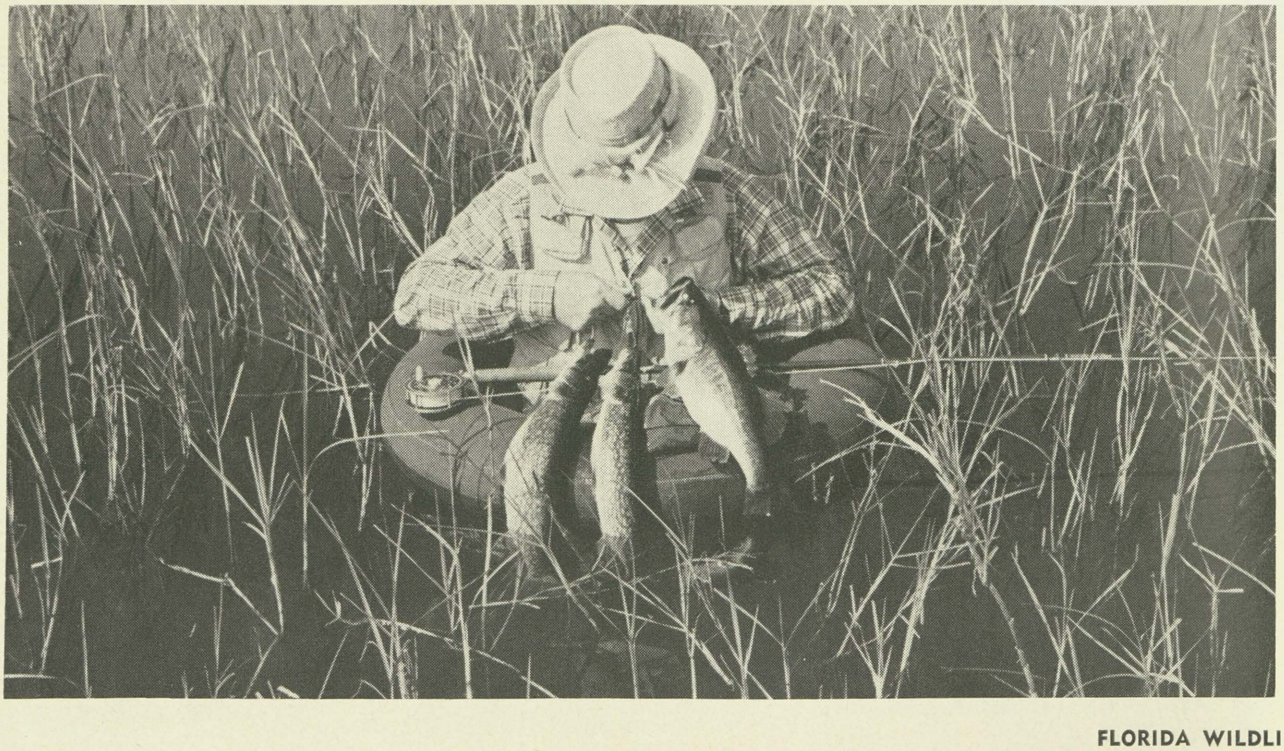
Somehow the word is out that a black bass loves to strike a snake at every opportunity and I had begun to subscribe to that idea until I was watching Walt Dineen, the FCD biologist, opening some bass a while back. Dineen found something that was partly digested and, at first, wasn't sure what it was but when he finally figured it was a snake he said that in the thousands of bass he's inspected he's found less than a dozen with snakes on the inside. Well, there goes that bass "fact."

So I figured here was a sharp bass man and I'd get his opinion.

"What," I asked, "does a bass think he's getting when he takes a worm?"

"Just something easy," said Walt. "He's never seen anything like it before but it looks easy to catch and easy to swallow so he grabs it."

Photos By Charles Waterman



Some plastic worms are so realistic, above, that even hooking them may bring reaction—but kids eat them sometimes. Even in thick grass, left, true worm experts can frequently beat flies or bugs. Just what does a bass think he's getting, right, when he takes a plastic worm? He may grab one because it's so easy!

If biologists are going to keep coming up with undramatic explanations like that, how are we perceptive, colorful and fascinating fishing writers going to retain dignity in our professions? Fortunately, most worm fishermen don't care what a bass thinks it is as long as he wants to eat it, and perhaps the bass thinks it's a plastic worm and good to eat. Some of them *are* good to eat, you know, and some small boys buy the licorice flavored ones for that purpose. However, don't go around munching all kinds of plastic fishing lures. For all I know, some of them may be deadly poisons. Anyway, if you have to lunch on a lure, be sure there's no hook.

I'm not going to begin listing the kinds of plastic worms but maybe I should bring up some specific types for specific uses.

One of the most popular methods is simply to buy the inexpensive worms with no hooks in them and put the hook in yourself. Some more expensive worms have built-in spring so that they tend to coil and uncoil when worked on the bottom or through the water. Some worms have hard heads so that the hook will hold better.

Anyway, the hardest thing for most of us to understand is how a worm with a single hook located near one end is going to catch fish when the worm is seven inches long or more. Seems logical that the fish is going to grab the lure where there is no hook. The rule here is that if the worm is worked slowly, as on the bottom, that you should give lots of time before setting the hook. If you're working the worm very rapidly, the quick hook setting may work.

The idea is that a fish taking something that's going rapidly is apt to hit at the front end of it. You'll miss strikes but you'll get some too, and if you're fishing over grass you may not want to give a "drop back" after the strike. But if you're working the worm along the bottom, many experts believe in giving the fish time to wad it up and get it into his mouth, no matter where he originally grabbed it. Knowing just when to strike a fish that is fooling with a plastic bait is a big part of the successful worm fisherman's repertoire and some knowledge of the occult is helpful. A real expert can almost give you a blow-by-blow of what the fish is doing all of the time. In this very slow fishing a rig should give little resistance to the fish until you're ready to strike him. Users of light spinning tackle cast the worm with no weight. Others may let the line run through a loose sinker on the bottom.

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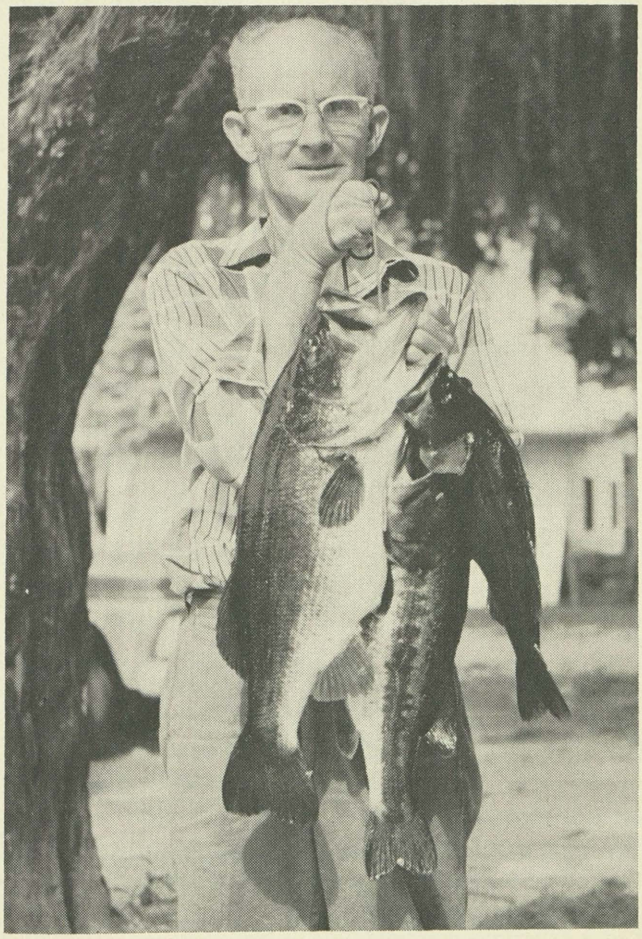
Photo By Art Runnels



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For years the worm was considered primarily a bottom bait and I was amazed when I first saw it used on top. Some worms will float and can be cast with light tackle. When the strike comes the fish can be given time to get the bait well into his mouth or, if the worm is short or has two or more hooks, the fisherman can set the hook instantly.

Worms are now among the big winners in the Okeechobee haystacks and similar thick cover. Most of those fishermen use weedless hooks and fish the worm just as if it were a spoon and *generally* they strike pretty promptly as the fish takes. They reel at a wide range of speeds and most of them keep the lure pretty well off the bottom. Of course any kind of worm can be attached to a planing lip that will bring it to the surface but, generally, the lip is a casting weight as well and the whole works must move fairly rapidly.

One spooky application of the worm is a kind of tug-of-war that can take place on a smooth bottom. You're retrieving the worm very slowly and feel a nibble. Instead of giving complete slack or striking you just keep pulling gently and as long as the fish pulls back you keep things coming. Then, when you're sure he really means business you can yank hard, assuming he has the bait inside his mouth. In my experience he often doesn't have the hook at all, but I am a notorious misser of worm strikes.

Modifications of the plastics are remarkable. The aforementioned springy worm is constructed so that, although it feels soft to the touch, it has a built-in, coiled form so that if you have been pulling it along and stop reeling, it still squirms itself back into a loose coil. Then there are a number of multiple-tailed models and the small tails undulate in the water. Some worm bodies are attached to what amounts to a small plug with a lip to cause action in the water and are embellished with plastic skirts. The best part about most of these arrangements is that the worm itself can be replaced whereas the more durable lip and hook can last indefinitely.

Of late, the plastic imitation lizards have been used a great deal, generally in areas where there are living lizards. Of course it may be that worms would work just as well.

I don't know how much odor and taste help or hinder these plastic lures. Most soft plastics have an odor of their own without the addition of anything else but some special come-on is added by special flavoring, I guess.

So it appears that color is important, if not from day to day, at least from area to area. The evidence in this direction is overwhelming.

Shape? Most fishermen don't feel that it's critical. The slender worm shape, of course, has more action than one that's fat. Of course the forerunner of the plastic worm was the plastic eel which is the same thing in a larger size. Before that, we had pork eels, you know, and they're still good big bass baits.

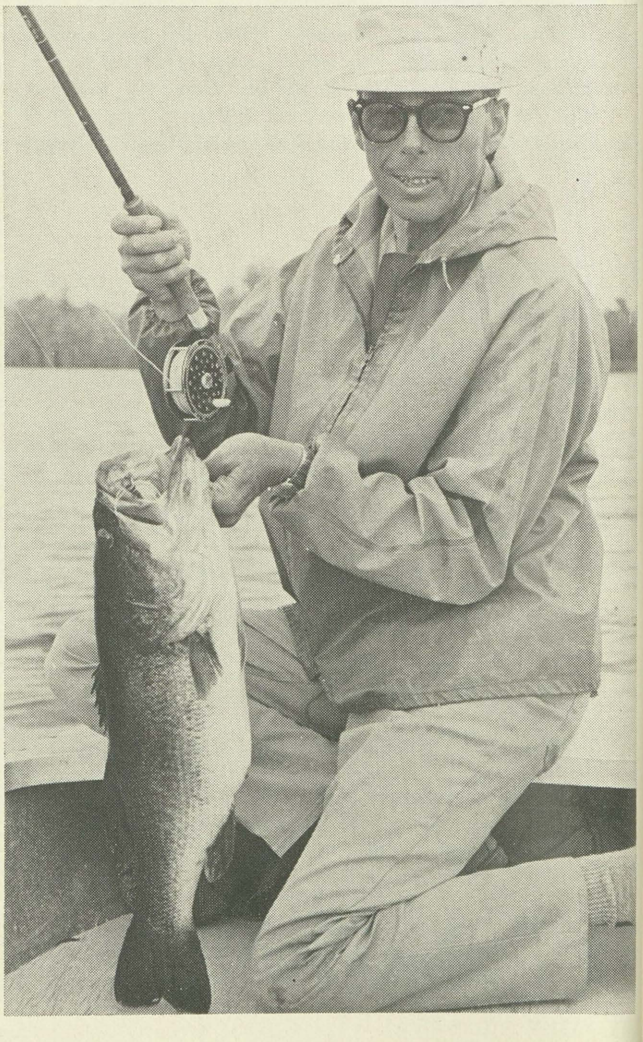
The plastic baits will catch salt water fish too but somehow haven't really come into their own. Few salt water fishermen have tried them extensively. Anyhow, my experience shows they'll take salt water trout (weakfish), striped bass and channel bass and goodness knows what else.

One of the popular baits for salt water is the lead-headed eel, made up with a plastic body, somewhat wider and relatively shorter than the regular worm type. The actual eel or eel skin has been a popular bait for many years on the Atlantic coast, all the way to Maine. It has proved especially satisfactory in the surf.

Now no one can say there isn't a world of skill involved in plastic lure fishing. Those of us who are defeated by it probably lack the patience to learn the finer points and may be too harnessed to older methods.

Then, it may be that we're just sore because we've been shown up so many times. ●

Photo By Charles Waterman



Ray Donnersberger fished all day with a popping bug for one strike—and one big bass. Worm results didn't interest him.

HUNTING

Muzzle Flashes

the firearms makers will use relatively inefficient open sight combinations because of costs, and not knowing sight type preference of individuals

By **EDMUND McLAURIN**

SOME FINE RIFLES of great potential efficiency are now giving only mediocre performance for their owners, either because of crude sights or because present sights are not compatible with shooter vision.

Firearms manufacturers continue to use relatively inefficient open sight combinations on otherwise high quality rifles. They do so because open sights are rugged, inexpensive to manufacture and do not add imposed Federal excise taxes, as would factory installation of national brand peep sights. Also, the firearms makers have no way of knowing individual shooter preference for sight type.

So they continue to incorporate a blade or bead front sight and some form of open notch rear sight as standard equipment, meanwhile usually furnishing the same rifles factory drilled and tapped for both telescope and rear peep sight mounting, leaving final decision and the installation to ultimate purchasers. (Examine side and top of receiver of that new rifle; chances are you will find tiny screws at one or both locations. These represent ready-tapped screw holes, spaced to accept standard scope or peep sight bases, and come filled with tiny finishing screws until you are ready to remove them and install scope or peep sight.)

For hunters possessing eyes no longer young, for truly accurate shooting at long range, and for sure, sharp definition of target in brushy country, a scope sight, as pointed out last month, is logical choice.

However, there are many shooters who, for various reasons, prefer to stick with metallics. For one thing, they regard iron sights as more durable afield and immune to fogging and internal mishaps that can make a scope sight temporarily useless. On that score they are right.

For dependability, I rely on a good micrometer-click adjusting rear peep sight, usually teamed with a bold, black blade front sight, or a Redfield "Sourdough" style front sight, one of the best hunting style sights that can be put on a sporting rifle. When field weather conditions are obviously going to be good, I use a scope. But the "workhorse" rifles in my hunting arsenal are metallic sight equipped.

Rear peep preferences run to the Lyman 48, Redfield Micro-Steel and the old Redfield 70, all with hunter style elevation and windage knobs; and the very fine Williams "Foolproof" receiver peep sight, which has no projecting knobs to possibly get in way during moments of fast gun handling.

All are excellent. I have used each and every one to successfully "write" my initials with bullet holes and to hit small steel washers tossed thirty feet up and out. For me, efficient use of a peep comes naturally from many years of peep sight use. I can vouch for the fact that a good peep sight, properly used, can give split-second, accurate sight alignment.

Optically, the shooter's peep sight picture is correct when the aiming eye, held close to peep hole, sees the top of the front sight exactly centered in the middle of the encompassing circular view seen through the rear sight's aperture.

The human eye naturally centers any object viewed through a round aperture held close to it.

If you doubt it, take a pencil and punch a small, round hole in a piece of paper. Hold the paper close to your aiming eye and look through the hole at various small objects. Notice how your eye tends to naturally center each selected object viewed through the peep hole. The same optical principle occurs when you use a peep sight close to eye.

In using a peep sight, simply look *through* the peep hole and let the aiming eye exercise its natural aptitude, while you concentrate on bringing front sight and target into alignment. With a little practice, centering of front sight will take place subconsciously and almost instantly.

Being close to the eye, and hopelessly out of sharp definition focus, the edge of the peep hole will be blurred; the aiming eye will automatically be drawn to center of peep hole, where light is strongest. The blurred circumference of the peep hole is actually a working optical asset. Just look *through* the peep aperture and focus on front sight and target.

Be sure to remove the factory installed open rear sight when you equip your rifle with one of receiver peep type. If the factory open sight is left on the rifle, it will partially block your field of view seen through the peep sight and nullify its benefits.

Either fill the empty slot with a metal blank, or install a fold-down style middle "check sight," like the Redfield 46 or Lyman 16.

Once aligned with a correctly sighted-in peep sight, the auxiliary sight is folded down and forgotten until such occasions as you may wish to turn

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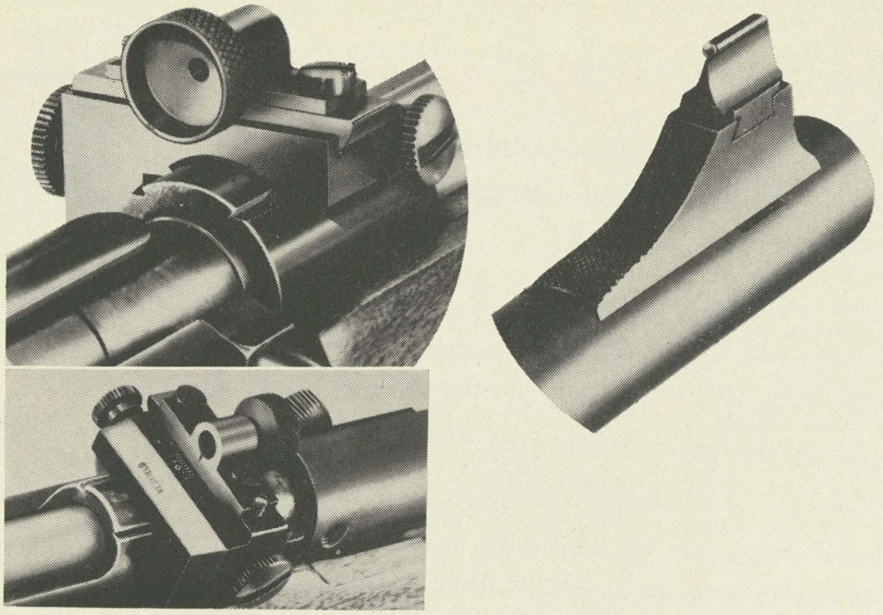

Redfield receiver peep sight (model for grooved receiver style rifles) and gold bead front sight on a ramp. Combination is a frequent choice of expert hunters.

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it up momentarily to check on the rear peep sight's alignment. Once accurately positioned to coincide with the rear peep's established zero for elevation and windage, the auxiliary, folding middle sight usually serves only as a "check sight" for quickly re-establishing a preferred sight setting. It probably never will be used as an aiming aid, unless the peep sight should suffer some irreparable damage afield.

A large target style sighting disc, with small center aperture (size .050 or .060) is in order for deliberate shooting at paper targets, but is a handicap on a hunting rifle.

Expert hunters generally use the target size disc and small peep hole to precisely sight-in from bench or sand bag rest; thereafter, for hunting, they either discard rear peep disc entirely and use the large peep hole offered by the sight's threaded aperture, or else they screw-in a small ⅜ inch overall diameter disc featuring a large inner peep hole of approximately .125 size.

One really appreciates the sighting qualities of a large peep hole when taking aim during dim light hours of early morning and late afternoon. The Twilight Aperture, ⅜ inch overall diameter with .125 size center hole, as made by Williams Gun Sight Company, Davison, Michigan 48423, price $1.25, is especially worthy of consideration. Its standard thread shank will screw-in other makes of peep sights, as well as the Williams models.

The front sight is the hardest working partner in a metallic sight combination. On its definition and precise alignment depends final accuracy.

Popular types are those shaped like a blade or a bead. Each type has its merits and faults.

For all-around use a clean-cut, flat-topped blade of medium width is fine. It should be of proper height, with parallel sides, and of good definition to the aiming eye. In a hunting sight of blade style, the Redfield "Sourdough" would be an excellent choice.

When using a blade style front sight with peep rear, the top of the front sight is seen centered in the circle of vision and the target is seen sitting on top of the sight, as one would view a ball or tin can resting on upright end of a 2 × 4 or flat-top gate post.

A bead sight is useful for hunting and for informal shooting at tin cans and other inanimate objects, but is not of much value for serious target shooting at orthodox round bullseyes. Simply, it is more difficult to hold two circles (the bead front sight and the round bullseye) on top of each other than it is to "sit" a round object on a flat post. This can easily be substantiated through a simple experiment, using two small coins of equal size and one end of an ordinary desk ruler.

With one of the coins representing the target, lay one end of the ruler, or the other coin, so that its edge barely touches the rim of the coin representing the target. By comparison, you will readily see the advantage of a medium width blade sight over one of bead type.

Bead sights are usually made from some eye-catching, colored material—like genuine ivory, bone, plastic or "gold" (copper alloy). All but the last are apt to prove fragile afield.

A metal bead sight, besides being durable, can be readily smoked dead-black, if need should arise, without damaging it in the least.

From an accuracy standpoint, the shape of a bead front sight is more important than its color. In physical proportions, a front sight bead should be perfectly flat across the back area seen by the aiming eye—never cone-like, hemispherical or otherwise irregular. Sides should be straight, and the surface of the bead on the far side, away from the eye and facing the muzzle, should have a slight taper towards the muzzle. Such a sight will give good definition—an important factor in final accuracy—because all important points will be equally illuminated by light striking the sight.

An irregularly shaped or glaringly shiny front sight will give a false center of aim, one varying with direction of light received. Errors in either horizontal or vertical sight alignment will occur—sometimes both. The condition is frequently referred to as "shooting away from the light." Bright, irregular shaped bead front sights and shiny, narrow blade sights are the worst offenders.

Besides shape and color, size of the bead is important, too. The bead must not be so small that it tends to fade out in poor light, nor so large that it obscures too much of the target.

But even a small, $\frac{1}{16}$th inch diameter bead will blot out about 10 inches of target area at 100 yards, if a point-of-impact aim is taken.

For hunting small game it is therefore better to sight-in so that bullets hit slightly above point of aim, the target resting on or being intersected by the top of the bead sight. More accurate shooting will result because the target won't be hidden behind the aimed front sight.

For big game targets like deer, shot at close range, a large, instantly found $\frac{3}{32}$ size bead can be used advantageously, with rear sight adjusted elevation-wise to make point of alignment coincide with desired bullet impact point at average hunting range. But the target must be large and the range short.

Unquestionably, the most accurate combination of metallic sights is a micrometer-click rear peep sight used with a hooded front sight, the latter preferably one that accepts interchangeable inserts to take care of different light conditions and specialized demands. The Redfield No. 63 Globe, Redfield International and the Lyman models 17A and 77 are typical examples.

The combination of hooded front sight and precision-adjusting rear peep sight is especially good for competitive target shooting and for deliberate, unhurried varmint shooting from prone or sitting position, but is too slow for the hunter who must shoot at fast and often erratically moving targets.

For serious target shooting, or for the more varied demands of hunting, take care to equip yourself with the best sighting aids obtainable. You'll shoot better and have more fun. ●

Firearms Registration Fears

By JOHN MARSMAN, Savage Arms

It is reassuring to see that some of the gun registration advocates are finally grasping a hint as to why sportsmen have feared gun laws all these years.

The most reassuring sign of this awakening has come from a leading New York City newspaper, long a proponent of national gun registration and licensing. Like all advocates of gun laws, it saw little inconvenience or red tape for the sportsman in the city's administering of the new registration law on shoulder arms. It would be as simple as registering automobiles.

That's not the way it turned out. Apparently gun registration in New York City is really a boondoggle, enough of a mess to prompt the following editorial comment from the New York Times:

> "Unfortunately, the city has not done all that it could to simplify registration. Form FCB's instructions read as if they were written by a Faulknerian scholar. A half dozen pages have to be filled out, including notarized vouchers, certified checks and photographs. All this may be helpful for the records, but the paper work is ridiculously complex. Why should it be more difficult to register a rifle than an automobile?"

Such naivete after all the warnings sportsmen have voiced! And in the shadow of the Sullivan Law, the notorious city ordinance of 1911 that was not supposed to cost gun owners a cent, much less take their handguns away from them.

Look at what's happening in New Haven, Conn. Pistol permit applicants must fill out 21 pages of information about themselves, despite an attorney general's opinion that such forms are not allowed. That's the kind of police power sportsmen fear.

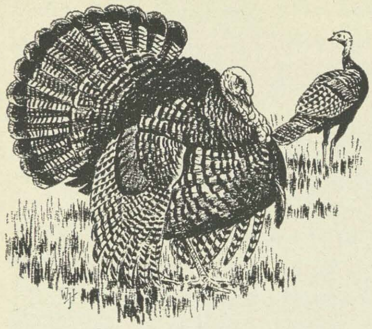
How can an applicant accurately answer such questions as where he intends to use the firearm, how often he uses it, on which days of the week he uses it and during what hours?

Then he's faced with inquiries regarding his medical history, military service, educational background, employment records and residential history. An error means either rejection or delay. This is the type of harassment sportsmen have feared.

Unfortunately, those who advocate gun registration and view the sportsmen's fears as unfounded seem to disappear after their "model" laws have passed and the abuses begin. Thus, it is reassuring to sportsmen to have a newspaper such as the New York Times take a look at the other side of the coin.

Hopefully, other metropolitan newspapers will follow its example. However, this type of hindsight won't correct the damage being done. A little insight could prevent it.

We now have a strong Federal law that governs many firearms transactions, even at the local level. Sportsmen should now seek uniform state laws, probably based on an owner's I.D. card. That will preempt the field of firearms regulation and prevent piecemeal harassment of gun owners by individual cities and towns. ●



CONSERVATION SCENE

Coming Highway Pork Barrel

". . . The highway-automobile complex threatens to destroy the land we live in, by burying it under a shroud of asphalt. . . . There are 3,600,000 miles of roads and streets. . . . The land area covered by roads and their right-of-way is estimated to be about 24,000 square miles—equal to the area of the state of West Virginia. But apparently we have only begun," writes A. Q. Mowbray in ROAD TO RUIN, published by the J. B. Lippincott Company.

In this critical study of the Federal Highway Program—a program which generously funds the installation of a border-to-border carpet of asphalt—the author cites the destruction of cities and the desecration of our national parks and other recreation areas that accompany the futile effort to provide for the free and rapid movement of automobiles — everywhere — throughout the land.

The physical debasement of our environment is compounded by the misery and financial loss suffered by people swept from their homes and small businesses by the tidal wave of highway construction. During the three year period from 1967-1970, it has been estimated that federally aided highway construction will displace 146,950 households (most of them in poorer communities), 16,679 businesses and non-profit organizations, and 5,000 farms. "When a highway slashes through a city, it is usually the low-income housing areas that suffer, the author charges.

The highway Trust Fund, created in 1956, now collects four cents on every gallon of gas sold and also taxes other motorist necessities such as tires and spare parts. It is a fairy tale pork barrel that magically refills itself as fast as the money is spent. Mr. Mowbray describes the perfect closed loop aspects of the Fund: "As the road mileage increases, more cars take to the roads and drive more miles, burning more gallons of gasoline, wearing out more tires, and feeding more money into the inviolate Trust Fund."

Money in the Highway Trust Fund is allocated to interstate highway construction — 41,000 miles by the mid 1970's — and pays 90% of the costs. Attempts to use this money for balanced transportation, or to "freeze" funds during the economy's inflationary crises, have been beaten down by the powerful lobbies of industries with a vested interest in highway construction, including such indirect beneficiaries as the automotive and petroleum industries. Money streams into the Trust Fund, which doles out the bounty to the states and the bulldozing and asphalting goes on inexorably.

While the author indicts a fearful Congress and the fearless industry lobbies, he assigns part of the blame to the American motorist, whose love affair with his car is "a passion that has culminated in an attempt to hard-surface the entire nation." Because the automobile owner believes it is his god-given right to drive wherever he chooses—and he often chooses to see the grandeur of our natural resources through the closed windows of his air-conditioned sedan—Mowbray warns: "The day will come when every lake will be encircled, every woods invaded, every park bisected, every trout stream bridged, every mountain tunneled, every city block cut, filled, viaducted, overpassed, interchanged, hard-surfaced, clover-leafed, its citizens isolated in a sea of asphalt and smothered in an ocean of exhaust fumes."

Florida Nature Conservancy

A RESOLUTION supporting Florida State Parks' Legislative request for five naturalists was adopted at the spring conference of the Florida Nature Conservancy.

Held at the University of South Florida's Chinsegut Hill Conference Center in Brooksville, the Conservancy also elected five new members to the board of trustees. They are Mrs. Nick Gandol of Orlando, Dr. George Cooley of Babson Park, Steve Fickett of Brooksville, Wayne Wellman of Miami and Kenneth Morrison of Lake Wales.

Plans were completed for acquisition of Fuchs Hammock in Homestead. Dr. Frank Craighead, Homestead biologist, and Mrs. Frances Young called this the last remaining virgin hammock in South Florida, containing over 250 species of trees, shrubs and ferns.

Future meetings of the Florida group were set, with a fall conference Oct. 18-19 at Koreshan State Park in Estero and the annual convention next spring at Sanibel Island.

An invitation was extended to the national Nature Conservancy headquarters for the 1970 convention to be at Naples, the site of Rookery Bay which is one of the largest Conservancy projects.

The Florida Nature Conservancy is a chapter of the National Conservancy, which has headquarters in Washington, D. C. The Florida group works in cooperation with other conservation groups to acquire and preserve natural areas such as Florida's Koreshan State Park in Estero and Jack Island Park at Fort Pierce.

Caladesi Island State Park

On a clear day you can see forever from the new observation tower at Caladesi Island State Park near Dunedin.

State Parks Director Bill Miller said the 60-foot steel structure, provided on a cooperative basis by the Florida Board of Forestry, was erected to provide a scenic view of both the Gulf of Mexico and St. Josephs Sound.

A sweeping view of the area around the 1,711-acre island actually gives the observer a glimpse of large ships 40 miles out on the Gulf, of Dunedin Beach and the causeway, the city of Dunedin, the city of Clearwater and a rather obscured scene of Clearwater Beach.

In addition, Miller said, visitors get an interesting glance at the island's oak and pine groves. Colonies of egret and heron nest in the mangrove growth there, osprey and owls live in the trees, with other tropical birds abounding in the 20 miles of canoe trails.

A picnic area providing 15 tables and barbeque grills, garbage disposal units, and two portable restrooms is adjacent to the tower.

However, Capt. Sam Wilson, park superintendent, points out that Caladesi Island is accessible only by water. As park facilities are still under development, no boat basin has yet been established.

Capt. Wilson suggested visitors take boats in at the northeast end of the island where there is deep water to the beach, tie up at the beach and walk some 1¼ miles to the picnic area. An alternate route is tying in at Sharrer's Pass on the south end of the island, following a service road 2½ miles to the picnic area.

Good Gun Bill Needs Help

Bills, bills, bills! Sounds like our household the first of any month. But it's also a good description of the situation in Congress right now, says John Marsman of Savage Arms Co.

Close to 10,000 separate bills have been dropped in the hopper in the House. In the Senate the number is much lower, for several reasons, but still impressive.

Over 80 of the bills in both houses concern firearms. More than half of these are to change the Gun Control Act of 1968, by exempting either all ammunition or all except that for handguns and destructive devices.

It seems obvious that the Congressmen who introduced these bills have been hearing from sportsmen from their state who are annoyed at being required to identify themselves and have each ammunition purchase recorded. (If they think it's annoying now, wait until hunting season!)

"Good," you say, "with so many bills introduced, one of them is almost bound to pass."

Wrong! Not a one of them is going anywhere unless some members get busy and make them move.

Why? The ammunition bills are being referred to the House Judiciary Committee. The Chairman of the Judiciary Committee has his own bill to register all firearms. Think he's going to report out a bill to make things a little easier for gun-owners?

In the Senate, Gun Control Act amendments are likely to end up in Senator Dodd's Juvenile Delinquency Subcommittee. Need we say more?

There are ways to get these bills moving without committee action. But it takes hard work and legislative know-how to make this happen.

Maybe enough sportsmen will write their senators and congressmen to get things moving.

Maybe. . . .

MOVING?

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Bacteria Trained For Waste

A Houston, Texas, scientist has developed a unique system for training bacteria to help in waste reduction by feeding on a specific substance, the Wildlife Management Institute reports. While municipalities commonly use bacteria for the treatment of sewage, Robert Pruessner of Petro-Tex Chemical Corporation, has refined the technique. In the patented process, the company uses a strain of bacteria specifically developed to consume the particular waste chemicals found in its manufacturing process.

Pruessner conceived the idea of teaching bacteria to "eat" chemical wastes as an answer to the industry's water pollution problem. Starting with a small quantity of sludge from the city's sewage plant, the bacteria were conditioned to feed on powdered milk. Once the proper number and "health" of the bacteria were established, they were fed ever-increasing quantities of the plant's effluent. Since bacteria evolve rapidly and adapt to new environmental conditions, new strains were developed that thrived on the substitute menu. Those bacterial forms that did not make the shift simply perished, but Pruessner soon had his own herd of useful critters.

Petro-Tex's wastes are treated in two large aerating ponds. Wastes, together with other "foods" maintain the bacteria in a healthy, productive condition. An anaerobic clarifier removes solids before the purified waste water is emptied into a nearby channel. To demonstrate the usefulness of its process, the company has a small pond through which the final effluent flows. Water hyacinths, fish, nutria, turtles, and even an alligator inhabit the pond.

Game Management Notes

STATISTICALLY speaking, during the 1967-68 hunting season 220,239 licensed resident hunters spent 4,427,900 days afield in Florida and bagged 42,900 deer, 18,500 wild turkeys, 33,600 wild hogs, 2,388,300 quail, 1,381,800 squirrels, 2,878,200 doves, 431,200 ducks, and 334,100 snipe.

These figures, all but the number of licensed hunters, are computed estimates of the actual harvest. They are based on the results of a random mail survey of Florida hunters conducted by the Game Management Division in cooperation with the Southeastern Cooperative Statistical Unit at North Carolina State University, Raleigh, according to Gordon Spratt, assistant chief of Game Management, Tallahassee.

The survey also revealed that on the average it took 29.1 days to kill a deer, 19.9 to bag one turkey, but only 8.3 days to take a wild hog. Quail hunters averaged slightly over three birds apiece on each day out—and 84,100 of them averaged nearly 8.4 man-days of quail hunting each.

Geographically, Northwest Region had the most resident hunters—52,300 in round figures. The other Commission administrative regions fielded these totals: South Florida—45,800; Central—44,600; Northeast—43,000; and Everglades—34,600.

The calculated deer harvest was distributed like this: Northwest—9,700; Central—9,500; Everglades—9,100; Northeast—7,700; and South Florida—6,800.

"The effect of unusually poor nesting success is reflected in the turkey harvest estimates," says Spratt, pointing out that the state total of 18,500 turkeys killed is down by some 12,500 from the 1966-67 harvest estimate.

On the other hand, the deer harvest in this report is up by an appreciable 8,900 animals from the '66-67 season estimate. Wild hogs, too, are up—by 10,600.

"Small game species are most important with respect to satisfying the greatest number of *hunters* and in terms of hunting opportunity, or *man-days*, and *harvest*," says Spratt. "Dove is the top small game species by all measures, and although more quail are harvested than squirrels, squirrel hunting provides more man-days of recreation than quail hunting. Therefore, squirrel may be considered the second most important small game species, at least in terms of hunting opportunity afforded Florida hunters. Squirrel harvests are diminishing as habitat destruction continues," he points out. (The '66-67 squirrel harvest was an estimated 1,420,000; the '67-68 figure, 1,381,800.)

The small game species provide by far the greatest number of man-days for Florida hunters. Quail, dove, snipe, squirrel and rail (above) are the "big five."

"In comparing previous survey data with current information we are able to confirm that average hunter harvests are declining proportional to the increase in the number of hunters, even though, generally, game populations are increasing," reports Spratt. "In addition, the average hunter is spending more time in the field to harvest most game species."

Commenting on the survey, Spratt says, "Many feel that the sample is too small (2% of the resident hunting license buyers) and question the reliability of the harvest estimates. The answer is that the level of precision could not be significantly improved by doubling or even tripling the sample size. The existing standard error of the estimate meets existing needs.

"The fact is that the field of wildlife management does not require a high degree of statistical precision in estimating wildlife populations and harvests. Our primary objective is to determine *trends* in game populations and hunter harvests which meet the needs of both administrators and resource managers. This we have been able to do.

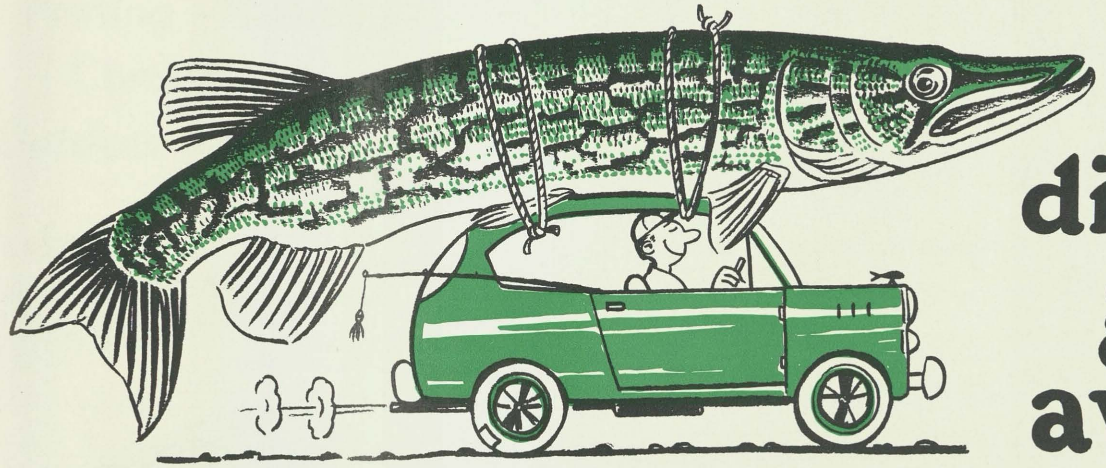
"The information furnished by hunters on mail questionnaires is processed by a computer which adjusts for hunter response bias and other factors which affect validity. Our harvest estimates are accurate in terms of management needs.

"Technically, we are wrong when we say 42,900 deer were killed during the 1967-68 hunting season. There were *approximately* that many deer harvested. The *actual* kill was somewhere between 37,500 and 48,300 since the standard error of the estimate was 5,400.

"In the case of quail, we should say there were *approximately* 2,388,300 harvested and that the *true* harvest was between 2,065,100 and 2,711,500 since the standard error of this estimate was 323,200."

Concluding, Spratt says, "Most of the southeastern states are cooperating in the statistical program. Our data compares favorably with surveys conducted elsewhere. Our methods are statistically sound and our harvest estimates are valid within acceptable limits." ●

For that BIG ONE that didn't get away



ELIGIBILITY REQUIREMENTS
SPECIES

LARGEMOUTH BASS	8 pounds or larger
CHAIN PICKEREL	4 pounds or larger
BLUEGILL (BREAM)	1 ½ pounds or larger
SHELLCRACKER	2 pounds or larger
BLACK CRAPPIE	2 pounds or larger
RED BREAST	1 pound or larger

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The catch must be weighed and recorded at a fishing camp or tackle store within the state by the owner, manager, or an authorized agent of the respective establishment.

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Type of Tackle__________

Bait or Lure Used__________

Where Caught__________ in__________ County

Date Caught__________ Catch Witnessed By__________

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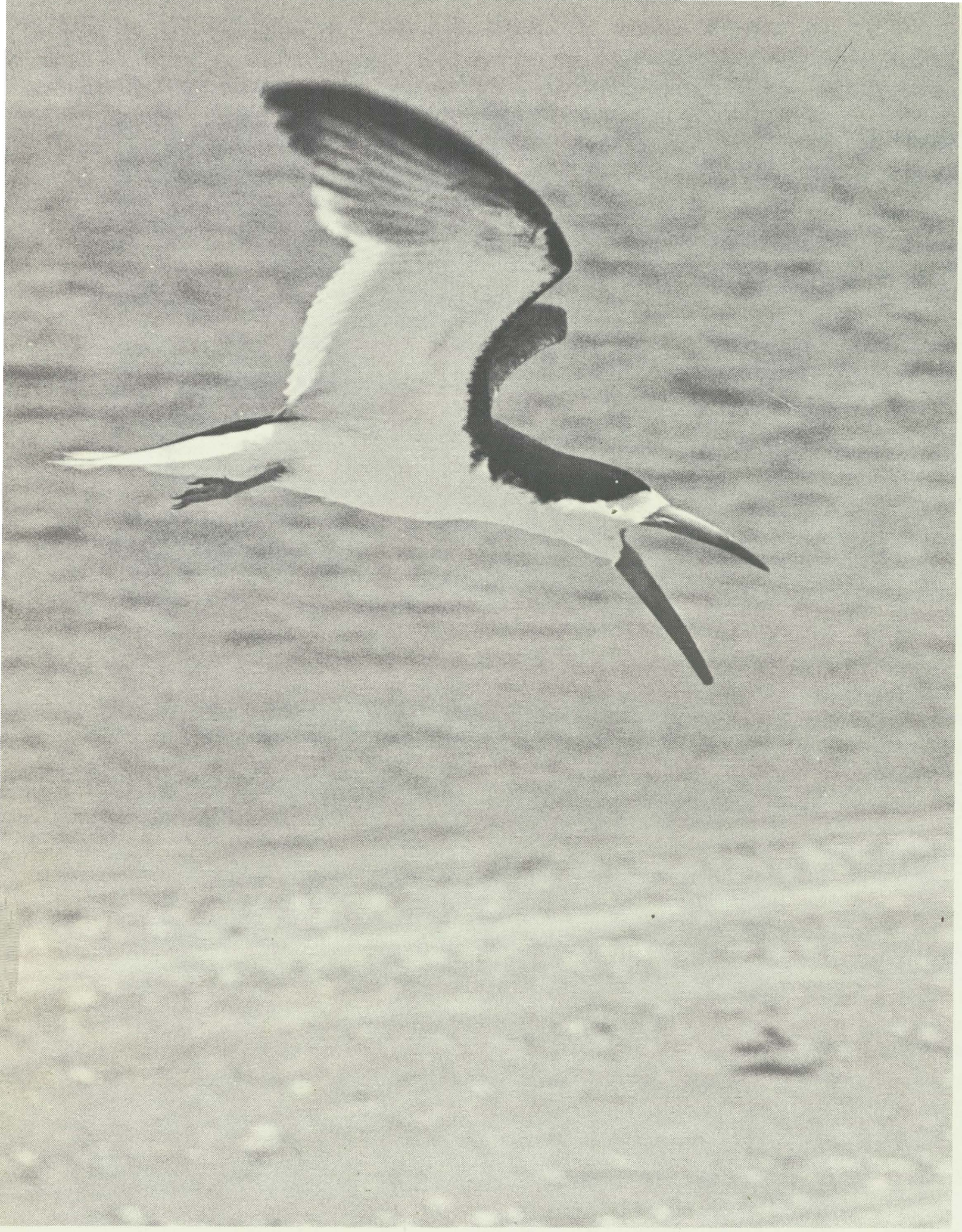

Black Skimmer Photo By Wallace Hughes

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